PSYCHOLOGY

A Class Manual in the Philosophy of Organic and Rational Life

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By

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This Class Manual is Dedicated
with Reverent Affection
(and with much concern about what he may think of it)
To
THE REVEREND ERNEST GENSHEIMER, O.S.B., PH.D.,
of Saint Vincent Archabbey, Latrobe, Pennsylvania,

a true student, a philosopher richly worthy to be called great, an eminent teacher, and a just (but alarmingly frank) judge of textbooks in philosophy.

PREFACE

This textbook takes its place as the seventh volume in a series designed to meet the needs of the ordinary college student. It is not to be judged from the standpoint of the specialist. The important but minute psychological matters which charm the specialist will be found charmingly compressed herein, or even more charmingly omitted from these pages. Further, this is a textbook in the *philosophy* of organic and rational life as manifested here upon earth. It is not a manual in what is called General Psychology; it is not a text in the experimental, phenomenal, or laboratorian *science* of psychology. It could not be any of these and lay claim to a place in the series of which it is now, happily or unfortunately, an integral part.

Let us anticipate the favorite line of the casual reviewer: *there is nothing new in this book*. Why, then, has it been allowed to come to light? Because novelty of subject-matter is not a particularly valuable feature in a textbook. The statement of doctrine herein contained may,—in arrangement, expression, and stresses,—be found suited to the requirements of many a hard-working collegian. It may meet his acute needs, crowded as he is with the weighty items

of a full curriculum. In some cases, the book may awaken desire for wider and deeper studies in philosophical psychology, and so may lead the student who uses it to those splendid and mighty works before which this little volume takes its reverent stand as a page at the feet of royalty. The book should help the college student to lay a sound and solid foundation of philosophy for the superstructure of scientific psychology which, somewhere in his course of studies, he will certainly be expected to raise. Further, the book should prove valuable to the studious layman who inevitably reads much psychology of one kind or another, and much that can easily lead off his mind from fundamental truths which man disregards at his eternal peril. It may help such a man by focussing his attention on things ultimate; by affording to his use the tests and touchstones of final reality with which he may learn the actual worth of what he hears and reads about life and its meaning. These are the reasons for the existence of this book. These are the ends it looks to, and the purposes it hopes to serve.

P. J. G.

College of St. Charles Borromeo,
Columbus, Ohio.

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INTRODUCTION

1. Name 2. Definition 3. Object 4. Importance 5. Division

1. NAME

Philip Melanchthon (1497–1560), the most learned of Luther's associates in the religious revolution of the sixteenth century, was a notable student of Greek, and he had a flair for inventing Greek names. His own family name of Schwarzerd (which is a combination of *schwarz* "black" and *erde* "earth") he translated literally into Greek, combining the words *melanos* "black" and *chthon* "earth" in *Melanchthon*. At the ripe age of eighteen, Melanchthon was a lecturer in Aristotelian philosophy at the University of Tübingen, and it was here, probably, that he formulated the name *psychology* for Aristotle's treatises on the soul and vital phenomena. The name is apt, for it is made up of the Greek words *psyche* "soul" or "life-principle" and *logos* which really means "word," "speech," or "thought," but which has long been employed to indicate connected, concentrated, systematic thought or discussion, and thus is taken to mean a scientific treatise or simply *a science*. Thus, from *psyche* "soul" and *logos* "science" we have *psychology*

or "the science of the soul or life-principle," "the science of life and its manifestations." It is, of course, evident that the name *psychology* is younger by many centuries than the science to which it was thus applied.

In our day, *psychology* is a term of very wide and inclusive meaning. The name *psychology* is applied chiefly to the study of those phases and manifestations of life which have their proximate explanation in physics, physiology, and biology. This psychology is usually called the *science* of psychology, in the limited sense which the term *science* has taken on in the past hundred years, and is distinguished from (although subservient to) *philosophical psychology* which is to be our subject of study in the present treatise. Scientific psychology is a prodigious, and largely recent, development of doctrine achieved by use of means and methods which were first made readily available by the laboratorians of the nineteenth century. Psychology as a *science* is really a complex group of sciences; its branches and departments are almost numberless. It is a worthy body of related sciences, the steady development of which is contributing hugely to our knowledge, and is affording inestimable practical benefits in the realms of education, sociology, economics and mental therapy

But, since the field of scientific psychology is widely various; since it has the strong appeal of a *modern* achievement; since its swift growth opens continuously new avenues of investigation; it has suffered,

and is suffering, from the activities of charlatans and over-zealous popularizers. Many sins against truth and moral rectitude are committed hourly in the name of psychology. (Many false doctrines,—some merely silly, some starkly calamitous,—are foisted daily upon a gullible populace (school-trained or ruggedly uncultured) as the most recent, and therefore the most valuable (!), discoveries of psychology. The word *psychology* has become a common, yet precious, term: it flavors the most insipidly casual of conversations; it is the standby of the travelling salesman; it has a pleasing taste in the mouth of the callowest of undergraduates and is savored solemnly on the lips of the most overpowering of professors. The name *psychology* is attached to cheap publications, and appears as the caption of treatises which flatter the half-educated by inviting them to soar on an ostensibly lofty plane of intelligence. Courses in psychology are made available to all, and may be undertaken without reference to the race, creed, color, or prevailing intellectual ineptitude of registrants, by the simple process of signing a coupon or mailing a pre-franked postcard. Psychology sparkles in odd corners, and shines in solemn "departments," of the ordinary daily newspaper. Indeed, the term *psychology* is as pitilessly abused to-day as that beaten and battered and bewildered word *science*.)

In the present study we employ the term *psychology* to indicate *the ultimate science,* or *the philosophy,* of

life and living bodies. Psychology the *science* is one thing; psychology the *ultimate science* or *philosophy* is another. The science looks to data to be discovered and applied by experiment, observation, collation, integration. The philosophy looks to ultimate truths about the essence and nature of life and its basic principle. The science and the philosophy are, indeed, closely related, and philosophical psychology does much of its groundwork in the field of scientific psychology. But philosophical psychology is rational in method; scientific psychology is largely experimental. The field of philosophical psychology is of wider, higher, and surer reach than that of scientific psychology, which is limited to the investigating of detailed phenomena and to the observing, testing, and applying of its individual discoveries.

2. DEFINITION

Psychology, as we employ the term, is *the philosophical science of life and living bodies.* Since the most important chapters of this science treat of the life that is manifested in *human* bodies,—a life that has its principle in the spiritual human soul,—the definition of psychology may be more fully stated as *the philosophical science of life, living bodies, and the human soul.*

a) Psychology is *a science.* We here use the term *science* in its older and literal meaning to indicate a body of demonstrable truth, whether the demonstration is to be made by laboratory experiment or worked out by reason. *A science,* as we here understand the term, means a body of connected data, relatively complete, and set forth in a systematic and logical manner, together with the reasons which justify acceptance of the data as true, and compel assent to conclusions drawn from them. Psychology squares with this definition of a science, and is, in consequence, a true *science.*

b) Psychology is *a philosophical science:* that is to say, it searches out the very deepest reasons for each point of its doctrine, and does not rest satisfied with proximate reasons as experimental science must do. Psychology is a philosophical science, and indeed it is an integral part of philosophy, but it is not, strictly speaking, a *metaphysical* science. It belongs to philosophical physics, not to metaphysics. It is a department of *natural philosophy* in the ancient Aristotelian sense of that term.—Psychology is a *speculative* or *theoretical* science, for it presents truth to be recognized by the mind and held as an enrichment and an illumination. It is not a *practical* or *normative* science, for such a science gives knowledge that leads immediately on to action, to something-to-be-done as the normal fruitage of that which is scientifically known.

c) Psychology is the philosophical science *of life, living bodies, and the human soul.* The term *psyche* means *life-principle in a living body,* whether the

body be plant, animal, or man. Psychology, which is the science of the *psyche,* treats of all life-activities and studies life in all its forms and manifestations. Psychology is a *human* science (that is, a science built up by human efforts and not enriched by divine revelation), and is not competent to deal directly or fully with the purely spiritual life of the angels or with that Ineffable Life which is God, the All Living. Psychology must deal with life as it is found in bodily creatures. Even in its larger and more important portions,—those, namely, which treat of man's soul, —psychology takes its data from human life and functions as manifested in man's earthly and bodily existence. Psychology is therefore *the science of life and living bodies.* We add the phrase *"and of the human soul"* to this definition, merely to indicate the outstanding importance of *human* psychology, or *major* psychology, as it is usually called.

3. OBJECT

Every science has a definite field of inquiry; this is called its subject-matter or its *material object.* Further, every science deals with its subject-matter in a special and definite way, and with a clearly specified end-in-view. This point of attack, this special aim and purpose, is the *formal object* of the science. Two or more sciences may have the same material object, for many inquiries may be prosecuted in the same general field. But no two sciences may have the

same formal object; if they had, they would be identified, and would be really *one* science and not two. To illustrate: anatomy and hygiene are sciences which study the human body and its organs, and, in so far, these sciences have the same subject-matter or material object. But these two sciences have not the same formal object; anatomy studies the human body and its organs to know their structure; hygiene studies the human body and its organs to know their proper functioning. Sciences are ultimately distinguished one from another by their respective formal objects.

The material object of psychology is *life in all its forms and manifestations* (bodily, mental, volitional) in so far as these things may be studied in bodily creatures. In a word, the material object of psychology is *life in living bodies.* The formal object of psychology (that, namely, which it seeks in studying its material object) is *the ultimate causes and reasons* of life and its manifestations. Here we notice how philosophical psychology (which we are here discussing, and to which we shall refer henceforth by the unqualified term *psychology*) differs formally from scientific psychology which seeks proximate, not ultimate, causes and reasons in its investigations of life-phenomena. Psychology inquires into essences; it asks what life is, what the life-principle or life-source is, whence this principle comes and whence it has the power to function as it does; psychology

also inquires what life is aimed at, what it is *for*.

On the score of its formal object psychology is distinguished from all other sciences which deal with living bodies. We have seen how it differs in scope and method from experimental and scientific psychology. It differs from botany and zoölogy which are limited to the study of vegetal and sentient life alone. It differs from biology which, while dealing with man's organic life, is incompetent to deal with essences and is unconcerned about first principles. It differs from physiology which excludes the study of mental and spiritual life. It differs from anatomy which studies the structure of living bodies; from histology which studies the tissues of organisms; from natural anthropology which seeks to classify man in the catalogue of animal organisms.

The material object of psychology is, as we have seen, life in living bodies, whether these be plants or brutes or human beings. But it is obvious that the most important kind of bodily life is human life; it is the most complex life, the most wondrously effective life, the most dominant life, the noblest life manifested here on earth. Besides it is the only life of which we, who study psychology, have any direct and conscious experience. Hence, although life in all living bodies is the *adequate* material object of psychology, the *primary* object of this science is *human life and its manifestations*. The life of plants and brutes

constitutes the *secondary* material object of psychology.

4. IMPORTANCE

It is manifestly of great importance for the person of education and culture to know all that can be known of life, and particularly of human life. Such a person requires a scientific and philosophical basis for his appreciation of human dignity, and for the proper grasp of the aim and purpose that is found in every human existence. To appreciate self, and neighbor, and God; to have the true philosophy of life and to know its meaning and destiny, the trained mind needs the equipment of psychological discipline. Common sense and simple faith suffice for the unschooled mentality; but who shall dare lay claim to the throne of the educated without a fundamental interest in *what it is* that is educated,—the physical, mental, spiritual, volitional life of man? Psychology is the very basis and ground of sane methods in pedagogy; it gives meaning to the thing called education. Further: psychology is the foundation of ethics inasmuch as psychology manifests the spiritual and immortal character of the human soul, and the freedom, and consequent responsibility, of the human will. And, since ethics is essential to political and juridical science, to sociology and economics, it is evident that psychology is basically related to all these

sciences. Psychology is, therefore, a most important science; it holds an indispensable place in the programme of collegiate studies.

A knowledge of philosophical psychology is of the greatest value to the student of experimental or empirical psychology in any of its branches. Such a knowledge keeps the student "on the right track"; it helps him to avoid quests that are destined to be barren; it keeps him from formulating theories that are bizarre or even harmfully at variance with truth; it gives him the key to many problems that, for the laboratorian, must remain forever unsolved.

As most modern errors in critical philosophy come from the failure of philosophers to distinguish accurately the fields of sense and of mind, so most modern errors in psychology come from the failure of philosophers and scientists to make a clear distinction between the physical and the psychical. Only the thoroughly trained student of philosophical psychology is equipped for making this distinction with accuracy and discernment.

For all these reasons, philosophical psychology presents itself to the student as a supremely important, and supremely necessary, subject of study.

5. DIVISION

This treatise is divided into two *Parts,* the first of which deals with life *in general* and *as manifested in plants and non-rational animals.* This Part is known

as Minor Psychology. The second Part treats of *human life;* it is known as Major Psychology. The present manual is, therefore, arranged as follows:

PART FIRST

Minor Psychology

Chap. I. Life
Chap. II. Vegetal Life
Chap. III. Sentient Life
Chap. IV. The Origin of Species

PART SECOND

Major Psychology

Chap. I. Human Life
Chap. II. Human Sentiency
Chap. III. The Intellect
Chap. IV. The Will

PART FIRST

MINOR PSYCHOLOGY

This Part studies the meaning of life in general, discusses the life-principle or soul which exists in every living body, and investigates the essential powers and operations of plant life and animal life. Further, the Part discusses the origin of species, that is, of essentially different classes of living bodies. These matters are set forth in the following chapters:

Chapter I. Life
Chapter II. Vegetal Life
Chapter III. Sentient Life
Chapter IV. The Origin of Species

CHAPTER I

LIFE

This Chapter discusses the nature of the reality which is universally indicated by such terms as *life, living, alive.* It studies the essential differences which mark off things which live from things which are not endowed with life. It discerns distinct grades or degrees of life and of living things. Finally, it discusses the root-principle of life, which is commonly called *the psyche* or *the soul.*

The Chapter is divided into the following Articles:

Article 1. What We Mean by *Life*
Article 2. The Difference Between Life and Non-Life
Article 3. The Scale of Life and of Living Bodies
Article 4. The Principle of Life

Article 1. What We Mean by *Life*

a) Life as Movement
b) Life as Activity
c) Life as Actuality
d) Definition of *Life*

a) Life as movement

We know what a thing is by studying its characteristics, its inevitable functions, its natural qualities. In other words we know a thing by knowing its *properties* or *attributes.* Characteristics (in quality or operation) which mark a thing as long as it remains what it is, and which change only when the thing itself has

been changed into something else, are *proper* to the thing; they constitute its *properties;* they must, of necessity, be *attributed* to the thing, and are its *attributes*. Properties or attributes are the indicators of *essence* and *nature*. *Essence* is that whereby a thing is constituted in its inmost and most real being as *such a thing; nature* is that whereby an essence has such and such inevitable operations or functions: for *nature* is essence considered as the root of function. When we ask what a thing is, we ask what is its essence and nature.

When we ask what *life* is, we ask what is the essence and nature of life. And we find the answer to our query by discovering what charcteristics life confers upon the things which possess it; by noticing the attributes or properties of living things.

Now, there is one characteristic universally recognized as the mark of a living thing; indeed, this characteristic is so intimately bound up with the very idea of a living thing that there is no thinking of *life* or *living thing* without it. And this characteristic is *the power of self-movement.* A living thing is one that can somehow move itself; not that it must be capable of skipping about from place to place, but in the sense that it is, of itself, equipped to *do* something by way of connatural operation or function. This power of self-movement is native to the living thing; it is *innate* in it; it is not merely put into it by some outside or *extrinsic* agency, as steam is let into the cylinders

of a locomotive; it is an *intrinsic* force or power.

There is an ancient axiom which declares that "where you find movement, you find a *mover* and a *thing moved;* and nothing really moves itself." This is quite true, but it does not contradict our notion of life. A living thing does not move itself into existence; it does not equip itself with its life-powers; but its powers, once bestowed, are exercised *by* the living thing, and *in* and *for* the living thing itself, and so are said to *perfect* the living thing; and for this reason life is described as *the power of self-perfecting movement.* In saying that life is self-movement, we do not utter an absurdity like the statement that a man can lift himself by pulling on his own boot-straps. We merely declare that a living thing is natively equipped with a power, intimately resident in itself and to be exercised through itself, whereby it does something for itself,—"moves" is the general term for the exercise of such power. A man cannot lift his weight into the air by pulling on his own boot-straps; but a man can pull on his own boot-straps, and that is an activity or movement which the man does by reason of a native or inborn power: the *man* does the pulling; the *man* has the power to pull; he exercises a movement of *his own,* and, in so far, it is self-movement. The force or power which the man exercises is not conducted to him from some extrinsic source; he need not be wound up like a clock, or connected with a dynamo by a cord and socket, or furnished with a steam-

line, or equipped with antennae or tubes or aerials. He does the moving *himself*. And so it is with the man's growing, or digesting, or hearing, or thinking. These activities are *his own*, exercised by means of powers with which he is natively equipped, and which function in him, and by him, and for him, and so are called, in their functioning, *self-movements*, and *self-perfecting movements*.

When a thing moves itself, we know it is *alive*. When a thing, natively equipped for self-movement, is no longer capable of such movement, we know that it is *dead*. We sometimes use the terms "alive" and "dead" in a figurative or poetical sense, as when we speak of a "live wire," or say that our radio is "dead." But the "live wire" is not really alive, as we well know; and we need no long period of observation to tell the difference between such a wire and a living thing,—a serpent, for instance. Nor do we conceive the physical and mechanical activity or "movement" of the radio as something proceeding from a natural and inborn principle of power. It is precisely because we recognize some sort of self-movement as characteristic of a living thing that we (who are all poets and lovers of figurative speech) are so quick to employ the analogy of *life* and the *absence of life* in daily speech. And so we speak of "a living flame," "a dead silence," "a style that is vibrant with life," "a dying echo," and so on.

Living things, therefore, are things which can, in

one way or another, move themselves. And life is the *power* of self-movement. And, since self-movement is movement in, by, and for the mover, life is described as *the power of self-perfecting movement*. This description, however, is applicable only to the life of *creatures*, and is most clearly evidenced in the life of *bodily* creatures.

b) LIFE AS ACTIVITY

Here we are to go over the ground already covered in our consideration of life as movement, but we are to employ a new term, to make a required distinction, and to learn some necessary definitions. Self-movement is, obviously, self-activity. For activity is action or the power to act; and a thing which moves itself (in the sense explained above) exercises activity; and that which has power for self-perfective movement, possesses activity.

Activity and *action* are distinguished as *immanent* and *transient*. *Immanent* activity (the term is from the Latin *in* "in," and *manere* "to remain") remains in the being which acts (called "the agent" from the Latin participial noun *agens* "the doer; the performer"). Immanent action or activity is said to "remain in" the agent, because it originates in the agent, and is finished in the agent, and produces its main effect in the agent. A plant grows; and the activity of growth is *immanent* in the plant. There are "outside" effects, of course; the growing plant stands in a

different relation (as to measurement or size) to surrounding bodies as it growth larger; but the main effect is *in* and *on* the plant itself. The growth as such begins in the plant and affects the plant and, as a function, ends in the plant. It is an immanent action or activity. All life-actions (or "vital actions" as they are usually called, from the Latin *vita* "life," and *vitalis* "having reference to life") are *immanent actions*. We shall have occasion to stress this point again.

Transient activity or action takes its name from the Latin *trans* "over; across," and *iens* "going." A transient action "goes across" the chasm which separates the agent (or doer, or performer) from an object outside his acting-power. A transient action is not finished in, by, and for the agent, but produces its main effect upon something else. The batter hits the ball. Inasmuch as the action is the batter's own exercise of power it is *immanent;* inasmuch, however, as the terminus, goal, or finished effect of the action is found in something other than the agent, the activity is rightly said to "go across" from the agent to the object affected, and the action is, in so far, *transient* action. The batter's activity,—in taking his posture, grasping the bat, moving his arms, swinging the bat to meet the ball,—is, inasmuch as it is *his own activity,* an *immanent* activity. Inasmuch as his activity results in the fact that the bat is grasped, arms are moved, bat is swung, ball is struck, the activity is *transient*. In transient activity force or power goes

out, or goes across, from the agent to an object acted upon, affected, or, in this technical sense, "perfected."

For an action to be *immanent* it is required, then, that its main effect, its goal or terminus, be within the agent which originates it. For an action to be *transient,* it is required that its main effect or terminus be found in something other than the agent which originates it. An action is not immanent merely by reason of the fact that it goes on *within the body* of the agent; nor is an action wholly transient by reason of the fact that it is completed outside the originating body. The whirling and churning of food in the stomach is, in itself, transient activity: it is the activity of the stomach upon something other than itself. Yet the activity of the stomach, considered precisely as such, is unquestionably the action of a living thing, it is its own action, its own self-perfecting movement, and is, in so far, immanent. The movement of the heart, the contracting and expanding of the lungs, are,—inasmuch as they are actions of part upon other part, or of containers upon contents,—transient activities; but, inasmuch as these activities are *vital,* inasmuch as they are activities exercised in, by, and for the living being, they are *immanent* activities. Again, a man clapping his hands, or bringing an emphatic fist down upon his knee, or stroking his whiskers, is egaged in activity which, looked at simply, is *transient,* even though the action affects no other body than the man's own. For activity of part upon part is transient ac-

tivity. Yet inasmuch as the movement of hand or fist is the man's own proper and self-perfecting movement (which could not be originated by a corpse or by a non-living body) and inasmuch as the action is begun and finished by exercise of a power that functions in, by, and for the man, the action is immanent. Its external or outer exercise is indubitably transient; its character as a vital manifestation marks it as unquestionably immanent. All vital activity is immanent; all immanent activity is vital: there is no immanent activity except the activity of a living being.

Immanent activity is not necessarily bodily. A man's thinking is immanent activity, so is his willing. And these activities are, as we shall see later, of a spiritual, supra-sensuous, supra-bodily character. This is a point to keep steadily in mind, and we should frequently recall it, for it might easily be forgotten or even overlooked in our studies of the manifestations of life *in bodies.*

Immanent activity in living bodies is regularly accompanied by transient activity, that is, by transient effects. A tree is growing outside my study window, and I find that it has now grown so large that it cuts off the view of my garden. This is a transient effect. The tree is growing by an immanent drive and force to reach and maintain its own mature state and condition; it is not growing to cut off the pleasing view from my window. The enlarging of outer bulk is transient, for it inevitably affects other things in the

surrounding universe; but the enlarging *in itself,* as a growth and a development and a perfecting self-movement of the tree, is immanent activity. Mark Twain tells, in *A Tramp Abroad,* of something he noticed in the Black Forest: "A toadstool—that vegetable which springs to full growth in a single night—had torn loose and lifted a matted mass of pine needles and dirt of twice its own bulk into the air, and supported it there, like a column supporting a shed." He adds, musingly, "Ten thousand toadstools, with the right purchase, could lift a man, I suppose. But what good would it do?" The growth of the toadstool, inasmuch as it is the exercise of a power which functions in, by, and for the toadstool, is an immanent activity. The main effect is in the toadstool itself. The fact that it lifts matted pine needles, or lifts men, is, so to speak, a side-issue, and not the main terminus and effect of its growth: it is something *transient,* and not immanent or indwelling within the toadstool itself as a growing thing.

All activity other than that of living things is transient activity. The rolling of a stone down a hill, the smooth movement of a well-built and well-oiled motor, the speeding automobile, the puffing locomotive, the ticking watch, the quiet sweep of the hands of an electric clock, the whizzing bullet, the upsurge of bubbles in a glass of carbonated water, the impact which sends sound waves from radio or phonograph, the flash of light from a beacon or from a distant star,—

all these are examples of transient movement or activity. None of these things is the self-perfecting movement of an agent. All are instances of movement or activity contributed (transiently) by an agent to some other thing. Consider the moving locomotive. The locomotive moves because the wheels go round; the wheels move because the driving-rods force them to do so; the driving-rods are moved by the steam in the cylinders; the steam owes its power to the heat and the confined space of the boilers; the heat is due to the releasing of energy from the fuel; the fuel got its energy from chemical and substantial changes, induced, under the pressure of earth, in decaying vegetable matter; the vegetable matter got its power from its structure and its response to the action of sunlight and heat and moisture and air; and the sun and the elements got their power, ultimately, from their Maker. And their Maker is the All Living God. All movement or activity, even the most obvious and mechanical of local movements, can be traced back by an inevitable chain of strict reasoning to the First Cause. All activity, even the most purely transient activity, can be, and indeed must be, traced back to indicate an Infinite Immanence of Activity, to an existing God, the Necessary, Eternal and Non-originated First Being.

Life, then, may be described as *the power for immanent activity*, which is only another way of saying that life is the power of self-movement, and of self-perfecting movement. Again we notice that this is a description of life as it exists in *creatures*.

c) LIFE AS ACTUALITY

A thing which exists is said to be *actual;* a thing which can exist, which is possible, is said to be *potential*. Further, an existing thing is *actually* what it is; it is *potentially* what it may become. Ice is actually ice, but potentially it is water; it actually has existence as a solid, but potentially it has existence as a liquid. Conversely, water is actually liquid, and potentially solid (ice) and gaseous (vapor or steam). The boy is actually a boy; potentially he is a man. The sinner is actually a sinner; potentially he is a saint.

A thing has actuality inasmuch as it has a determinate being. A living thing is actually a living thing inasmuch as it has the determination, or "form," which makes it alive. Therefore the determinate reality, the form, by which a thing is a living thing, is the *basic* actuality or the *first* or fundamental actuality about the thing as a living thing. For this reason, the determinate reality, the form, the essence, which makes a thing alive is called *life in first actuality*. The ancient Latin phrase is *"vita in actu primo"*: "life in first act" or "life in first actuality." We shall presently find that the principle or form which makes a body a *living* body is the psyche or *soul*. The soul itself is "life in first act." The soul is that actuality whereby, first and foremost, the bodily being which

has it is alive. Hence, the soul or *life-principle* is "life in first act."

The life-principle, or soul, in a living body tends naturally to exercise life-activities in and through that body. Not that the life-principle is merely enclosed in a body as a prisoner is enclosed in a cell; no, the life-principle is joined with the body in a substantial way, so that the living body is one living substance; and it is this living substance which has life-activities. Yet it is *by reason of* the life-principle that the living body has life-activities and tends to exercise them,—*must* exercise them, indeed, if it is to remain alive. And the actual exercise of life-activities constitutes *"vita in actu secundo,"* "life in second actuality," or "life in second act."

To put the matter more simply: a living body, must have a life-principle or soul to make it live. This principle, therefore, *is* the life of the living body inasmuch as it is the first, and foremost, and basic actuality whereby the body is alive. Further, the living body, to be living at all, must necessarily exercise the activities proper to a living body. Such exercise of life-activities, therefore, *is* the life of the living body, not indeed basically (or *in first act*) but as a necessary consequence upon the fact that the body lives. Exercise of life-activities comes in the *second* place, once the body is alive in the *first* place. Hence the exercise of vital activities is life *in second act*.

In a word: life *in first act* (that is, in first actuality) is the soul or life-principle. Life *in second act* (that is, in second actuality) is the vital function or operation.

d) DEFINITION OF *LIFE*

We are to define the term *life,* and the term expresses the idea or concept (that is, the mind's essential grasp) of the *reality called life*. Our definition is to be at once the explanation of a word or *term,* of the *idea* or concept which is expressed by the term, and of the *reality* or thing of which the mind has the idea and for which the term stands.

Life is the natural capacity of an agent for self-perfective immanent activity or movement. This is rather a definition of life *in first act*. We may define life *in second act* simply as *self-movement*.

Life is defined as the natural capacity of an agent for self-perfecting movement, because this capacity is common to all living things (that is, *created* living things); it is the source of their life-activity; and it is never found in lifeless things. The definition, therefore, is the accurate explanation of an essence, and is, in so far, a true definition. Further, life is defined as self-movement, for such movement is inevitably characteristic of every living creature (plant, animal, man, or spirit), and is never predicable of a lifeless thing. Again the definition accurately designates a certain thing, a definite essence, and is, in consequence, a true definition.

Life, as we have defined it, is the life of creatures, of limited agents. God, the all-perfect Being (as we learn from the branch of philosophy called Theodicy) is the All Living; but the divine life is not self-perfective; indeed, that which is all-perfect cannot be perfected. Further, in creatures life-activity is something distinct from the life-principle; the living thing is not the same as its vital activity, nor is the life-principle or soul the same as the operations which proceed from it. In God, the vital activity is one with the divine essence and substance. Again, in creatures life-activity is *caused* by the life-principle; in God nothing is caused; the divine essence is the *reason* for the infinite life-activity of God's understanding and will, but does not *cause* this activity. Finally, in creatures self-movement inevitably involves a *change* in the living thing which exercises it; in God there is no change or shadow of alteration.

From the foregoing consideration we see that life, inasmuch as it is *a perfection*, is predicable of everything which lives, of creatures and of God, the Creator. But life, inasmuch as it is *a perfecting*, is predicable of creatures but not of God, who is all-perfect and therefore not perfectible. Life, therefore, is predicable of God and of creatures in a manner that is not wholly the same, nor yet wholly different. It is said to be predicable *analogously* (or *by analogy*) of God and of creatures. But life is predicable of living creatures *univocally*, that is, in precisely the same *manner* of each, though not necessarily in the same *degree*. Thus when we say that a plant is alive, and that an animal is alive, and that a human being is alive, and that the soul of man is alive, and that an angel is alive, we use the term "alive" in precisely the same sense, even though we do not mean that the same *degree* of life,—the same capacity and complexity of varied vital operation,—is present in each of the creatures mentioned.

SUMMARY OF THE ARTICLE

In this Article we have learned what is meant by the *attributes* or *properties* of living things, and have found that these indicate and evidence the reality called *life*. We have seen that the basic property of a living thing is its capacity or power for *self-movement*. We have distinguished activity or movement as *transient* and *immanent*, and have learned that life-activity is always *immanent activity*, even though it regularly has outer effects or "side issues" which are transiently effected. We have noticed that immanent activity is synonymous with vital activity or life-activity, and that all non-vital activity is necessarily transient in character. We have noticed further that the existence of activity, immanent or transient, points inevitably back to an Infinite Immanence of Activity as its necessary First Cause. We have described life *in first actuality* and *in second actuality*.

We have defined life, and have noticed that life is predicable of living creatures *univocally,* while of living creatures together with the Living Creator life is predicated *analogously.*

Article 2. The Difference Between Life and Non-Life

a) How Things May Differ b) Points of Essential Difference in Living and Lifeless Bodies

a) How things may differ

Things are either *identical* or they are *different.* The identity of things may be more or less complete. It may occur only in minor matters such as quality or quantity (thus snow and milk are identical in point of whiteness; honey and sugar are identical in the fact that they are both sweet; a yard of silk is identical with a yard of cotton in quantity) or it may occur in the major matter of essence. In point of essence again, identity may be more or less complete. The oak and the pine are identical as *trees;* the oak, the pine, weeds, moss, grass, and ivy are not identical as trees, but they are identical as *plants.*

The absence of identity is called *distinction,* and sometimes *difference.* It is obvious that just as *identity* is a matter of degree, so with *difference.*

Of course, every single reality in the universe has its own proper identity as *an individual thing,* and, in this respect, it is distinct and different from every other individual thing. The grains of sugar in a sugar-basin are individual grains; one is not another; and hence every grain is distinct from (and, in so far, different from) every other grain, and from every other reality. But the grains of sugar are all of the *same essential kind;* they are identical in their *essence,* even though they are distinct *as individual grains.* Again: John and Mary differ as individuals; they differ in sex and in name, and, most likely, in age, in size, in weight, in appearance, in complexion, in strength of body, in ability of mind, in disposition, in degree of health; likely, they differ also in parentage and place of birth; perhaps they differ in nationality, and even in color. But John and Mary do not differ in their essence,—in the basic *kind* of being they are; for each is *a human being.* They differ *as individuals,* but not *in essential kind.* In other words, their difference is not *essential,* but non-essential or *accidental.*

Now we ask about the difference between life and non-life, which, for our present study, amounts to the difference between living bodies and lifeless bodies. We ask, "Is this difference *essential,* or is it merely *accidental?*" The question is fundamental in psychology; upon its answer depends our whole philosophy of life and living bodies.

And the right answer to the question is this: living bodies differ *essentially* from non-living bodies. The proof of this assertion is now to follow.

b) POINTS OF ESSENTIAL DIFFERENCE BETWEEN LIVING AND LIFELESS BODIES

Everyone knows that there are marked differences between living bodies and lifeless bodies. But some philosophers and scientists have taught that these differences are not *essential* but merely *accidental*. Against this mistaken view stands the certain fact that the *properties* of a thing (unvarying characteristics and inevitable functions) indicate its essence; and the fact that the properties of living bodies are *essentially* different from (and often opposite to) the properties of non-living bodies. Now, essences that are indicated by essentially different properties *are essentially different essences*. Therefore, living bodies are *essentially* different from non-living bodies.

Among many points of essential difference between living and lifeless bodies we must notice the following:

1. *Natural Origin*—Living bodies come into existence by way of vital generation. Immediately or mediately, parent bodies produce them. And the parent bodies are of the same essence and nature as the generated bodies. Non-living bodies do not come into existence in this way. They are not generated by a vital process but are formed by physical accretion or by chemical combination. The apple-tree produces apples which have seeds that will produce other apple-trees, and these will produce other apples, and so on indefinitely. Apple-trees really come from parent

apple-trees (in the mediate way described above, or by the immediate way of cutting and planting a suitable portion of the parent tree). The parent-trees and the generated trees are of the same nature and essence. But a block of granite does not bud forth fruit or seeds from which other blocks of granite may be grown, nor will a "cutting" of the block grow and develop into another block. In point of *natural origin* we discern an essential difference between living and lifeless bodies.

2. *Growth and Decline*—A living body begins with a cell or group of cells which multiply and form tissues and organs and so build up a definite and complete living body (or *organism*) of a determinate type and kind. Normally, this body will develop into a state of maturity, using, from the first,—as indeed it did in its primal cells,—a strange power called *nutrition*, by which it takes alien substances into itself and changes these into its own substance. Reaching maturity, the living body tends to maintain its perfection *for a time*, still taking food and replacing the cells and tissues used up in the exercise of its functions. After a time,—even though food remain plentiful and all external conditions for living continue favorable,—the living body begins to decline in power, activity, function. Presently the organism breaks down; life is no longer present; the body is resolved into its physical and chemical elements. Now, it is not so with the growth and decline of non-living bodies. These do

not really grow at all, even when they increase in size or bulk. Non-living bodies do not come from active cells which multiply to build up their bulk and structure. There is, in lifeless bodies, no inner drive for development to a state of maturity or towards completeness in size, shape, or constitution. Lifeless bodies increase by the addition of parts from without, not by the development of parts through the exercise of immanent power. No one can fail to notice the essential difference between the growth of a plant and the increase of a snowdrift. The plant grows by the exercise of an inner power which assimilates alien substances and changes these into its own substance; the snowdrift grows by the external addition of flake to flake. Like the snowdrift, certain crystalline substances "grow"; chemical attraction draws to the mass of crystals other free crystals of the same essential kind, and these are piled up, layer on layer, to make the mass larger. But who does not see that this is a process essentially different from the growth of a living body?—Living bodies tend to exist and function for a period of time which can be well determined within maximum and minimum limits, and then to break down and decay; they tend to run a definite course of self-perfective action. Non-living bodies, on the contrary, tend to remain stable and maintain an equilibrium. The crystal vase may be as frail as the lily it contains; but the vase, if merely left alone, will stand ten thousand years, while the lily fades, dies,

and falls to pieces in a few hours. Non-living bodies may, indeed, be worn down and dissolved, but this is always an effect of the activity of outer agencies; they never disappear through the failure of some indwelling power which finds the body structure increasingly unsuitable to sustain its action. It is surely obvious that, in point of growth and decline, living and lifeless bodies are marked by *essential* differences.

3. Structure and Function—Every living body is *cellular* in structure. That is to say, a living body is made up of *cells*, which are microscopic bits of living matter (and hence each cell is itself a living body). The cells are highly complex in constitution and amazingly active. They grow and divide, spread and multiply, to build up a body of most varied parts (roots, bark, fiber, leaves, etc., or flesh, bone, muscle, nerve, etc.) and yet a body that is perfectly arranged and organized according to a definite type, and unified for its proper functions. The cells build up the body and the *organs* of the body. Organs are special parts (root, radicel, sucker, etc., or eye, ear, nose, lung, liver, heart, etc.) which are fitted to different and individual functions, and yet all their varied operations are meant to serve *the living body as a whole*. The cells thus build up a body that is most complex and varied in its parts, and all the various parts come together in a marvellous unity and balance according to a definite nature, plan, and type, in each sort of living body. The living body is, therefore, *heterogeneous* in its

parts (that is, it has parts of different kinds) but perfectly *harmonious* in its entirety. The union of heterogeneous parts in a harmonious living unit is called *organization* (for each part is an *organ*) and the living body is said to be *organized* and constitutes an *organism*. Sometimes we use these terms metaphorically in our daily speech, as when we speak of a newspaper as the *organ* of a political party, or say that a committee was *organized* for some purpose, or declare that a company of business men is a well-balanced *organization*. But, strictly and literally, there is no organization but that of the parts of a living body united in one harmonious whole. The word *organism* is synonymous with *living body*. Every living cell is an *organism* (for it is a living unit made of various parts) and every body made of living cells is an *organism*.—Now, non-living bodies are not cellular in structure, nor are they built up by a drive or power resident in their elements and tending to form them into bodies of definite structure and function. Atoms and molecules are active in non-living bodies, but their activity is purely *mechanical* (local movement), *physical* (variation in qualities, such as color, heat, sound, electricity), and *chemical* (activity of uniting, dissolving, etc.); their activity is never *vital*. In other words, the activities of non-living bodies are invariably *transient* in character, while the activities of organisms (that is, of living bodies) are specifically *immanent*. Of course, living bodies are *bodies*

and have the activities proper to *all* bodies, living and lifeless; and hence there is much activity, even in organisms, which is mechanical, physical, or chemical in character. But the point we make is this: living bodies have all the kinds of activity observable in non-living bodies, and, in adition, they possess an inner drive towards definite, complex, balanced structure and function, which non-living bodies do not possess at all, and do not so much as begin to possess at all. Further: living bodies are *heterogeneous* in their parts; lifeless bodies are *homogeneous* (that is, all parts are the same essential kind). The branch of a tree is of a different structure from its root; the fruit is not the same as the bark; but a bit of limestone chipped from a block is of the same structure as the block. An explosion may blow plant or animal into ten thousand pieces; but the pieces are not as perfectly plants or animals as the original living body was plant or animal. But an explosion will blow a block of limestone into ten thousand pieces, and each of the pieces is just as perfectly limestone as the original block. This illustrates what we mean by indicating *heterogeneity* and *homogeneity* as points of essential difference between living and lifeless bodies. We might develop the point further: the parts of a heterogeneous living organism are *interdependent;* their special functions all meet in a unified and unvarying tendency to perfect the organism as a whole,—to develop it, preserve it, and propagate it. And these interdepend-

ent parts and functions are thus *substantially* united in one living body. But the parts of a homogeneous mass (non-living body) are not *interdependent,* and they cling together *accidentally* (and not substantially) by reason of the external or extrinsic forces called gravitation and cohesion. Knock off a part from a living body, and the body suffers; it tends to repair the injury, and if it cannot repair it, or heal its wound and manage without the lost part, it dies and decays, and is dissolved into non-living matter. Knock off a part from a non-living body (a stone, a block of dry wood, a ball of wax) and the body is not discomfited; it makes no effort to heal or repair; it shows no tendency to decay and to resolve itself into other kinds of matter. Here we see that in point of interdependence and substantial union of parts, living bodies differ essentially from non-living bodies, the parts of which are not interdependent nor substantially unified. In all this we clearly see that living and lifeless bodies are such different things that only the blindest or most perverse judgment could refuse to recognize their difference as *essential. Structure and function* indicate, beyond the possibility of quibble, that living and non-living bodies are basically different *kinds* of bodies. In other words, they are *essentially* different.

SUMMARY OF THE ARTICLE

In this Article we have studied the meaning of *identity* and *difference,* and have learned what is meant by *essential difference* as distinguished from *accidental difference.* We have reasoned from the essential difference of the *properties* of living and of lifeless bodies to the essential difference of these bodies themselves. In support of our reasoned argument we have drawn special proofs from a study of living and non-living bodies in point of their *natural origin,* their *growth and decline,* and their *structure and function.* Thus we have established the inescapable truth that between life and non-life, between living bodies and lifeless bodies, there is a difference truly *essential.*

Article 3. The Scale of Life and of Living Bodies

a) Differences Among Living Bodies b) The Degrees or Grades of Life

a) DIFFERENCES AMONG LIVING BODIES

All the living things in this bodily world may be grouped into three general classes: those that have growth, those that grow and move and have feeling, and those that grow and move and feel and reason. In other words, the three fundamental classes of living bodies, recognized by everyone, are *plants, animals,* and *human beings.*

There are many minor classifications, of course, in the classes of plants and animals. The botanist will present endless litanies of groups and sub-groups. The

zoölogist and the biologist will offer general classes or *phyla,* and carry each phylum down through classes, orders, families, genera, species, races, and varieties. But the botanist recognizes, throughout his lists, one *form* of life, namely, the *vegetal* or *plant* form. And the biologist finds in all the varied objects of his study the *sentient* or *animal* form of life. The psychologist must discern, in the major object of his attention, the specifically *human* form of life, which is *intellectual* or *rational.*

Now, are these three forms of life *essentially* different, one from another, or is their difference merely *accidental?* All living bodies are at one in the fact that they are *alive;* all have life in the sense of a capacity for self-perfective immanent activity; all manifest self-movement. In a word, all have *life,* and life is a single essence, with a single definition. Still, a single essence may have forms which are essentially different. We have just seen that there are essentially different kinds of bodies (viz., living bodies and lifeless bodies), although all are equally bodies, and a body is one definite essence or reality, with a single definition. The fact is, of course, that some bodies are merely bodies and nothing else, while other bodies are bodies plus another essence called life. In the same way, plants, animals, and human beings all have life; but animals possess all that plants have, plus something else, and human beings have all that plants and animals have, plus something else. And the "something

else" in each case is something essentially different and superior. We assert that the difference which marks off animal life from vegetal life, and the difference which distinguishes human life from the life of plants and animals, is, in each case, an *essential* difference. The assertion is not difficult to prove, and we shall pause upon the point for only one brief paragraph.

We have already seen the axiom, "Function follows essence," an axiom very often quoted in the old Latin formula, *agere sequitur esse.* The phrase means that as a thing *is* so it must *act.* A reality is constituted by its *essence;* its essence makes it what it is, and therefore determines the scope and character of its activity or operation. Conversely, the operation or activity of a thing,—that is to say, its *proper* activity,—is an indicator of the basic constitution or essence of that thing, and indicates the capacity and the limitations of that essence. Hence, if one living body has a proper operation for which another living body shows no capacity whatever, there exists, between these two living bodies, *an essential difference.* For function follows essence, and the proper function of the first body follows from, and indicates, an essence which is in no wise indicated by the proper operation of the second body. In a word, here are *two* essences. And this is but another way of saying that the difference between the two bodies in question is an essential difference. Now, the operations of sensing, and of

conscious local movement, are proper to animals, and are in no wise attributable to plants; plants are not equipped with organs for sensing; they lack the nervous structure required for conscious activity, and they are regularly rooted and fixed in such a way that self-directed local motion is utterly impossible to them. Yet the essence of plants is definitely and completely constituted without these functions, whereas the essence of animals requires them. Different functions indicate different essences. Therefore, between plant and animal there exists an essential difference. Further, the human operations of understanding and willing are entirely beyond the capacity of brute animals; the animal essence is complete without these operations while the human essence requires them, at least *in actu primo,* in basic capacity, even if this capacity be unrealized in actual operation. Different proper functions indicate different essences. Therefore, between brute animal and man there exists an essential difference.

We conclude, therefore, that there are, in this bodily world, three essentially different forms of life: *plant* life (or *vegetal* life); *animal* life (or *sentient* life); and *human* life (or *rational* or *intellectual* life).

b) THE DEGREES OR GRADES OF LIFE

Not only are there three essentially different forms of bodily life, and consequently three essentially different kinds of living bodies, but the forms and kinds are also *grades* or *degrees*. The word "grade" (and, indirectly, the word "degree") is derived from the Latin *gradus* "a step." And a step is a pace forward or back, up or down; it suggests a connection or relation with another situation. A step is like one level of a stairway, or one rung of a ladder, chiefly in this: that the second level or rung has all the elevation of the first, *plus* its own elevation; and the third level has all the elevation of the first two, *plus* its own elevation.

In bodily life, and in living bodies, we discern true *degrees* or *grades*. The lowest and least complex level of life is *plant* life. The next level is *animal* life. A plant is a bodily thing which takes nourishment, grows, and generates its kind. So is an animal. All that a plant can do, an animal does; but an animal does *more*. An animal, in addition to plant operations, manifests its own proper activity of sensing, appetizing, and moving about. Therefore, plant life and animal life are not merely two forms of life, but two *grades* of life. The third and highest level of life in living bodies is *human* life. Man takes nourishment, grows, and propagates his kind, like a plant; he senses, appetizes, and moves about, like an animal; and, in addition to these operations, he exercises his specifically human operations of understanding and willing. Hence, plant life, animal life, and human life are distinct *grades* of life. And plants, animals, and hu-

man beings are distinct *grades* of living bodies. In the foregoing section of this Article, we have seen that these grades are *essentially distinct or different.*

SUMMARY OF THE ARTICLE

This brief Article has taught us that all the myriads of living bodies found in the world may be classified under three general heads,—vegetal beings, sentient beings, and human beings; or, more simply, plants, animals, and men. We have learned that these classes of living bodies manifest, respectively, functions or operations which are different, not merely *accidentally,* but *essentially.* And since function follows from, and indicates, essence, we have concluded that plants, animals, and human beings are *essentially different kinds of living bodies,* or, in other words, that they are endowed with *essentially different forms of life.* We have learned further that these essentially different *forms* of life are also essentially different *degrees* or *grades* of life.

ARTICLE 4. THE PRINCIPLE OF LIFE

a) Meaning of *Principle* b) Need of a Life-Principle
c) Character of the Life-Principle

a) MEANING OF *PRINCIPLE*

A *principle* is a source or a starting point. The word *principle* is the English form of the Latin *principium* which, in its simplest meaning, signifies "a beginning." In somewhat ampler form, the definition of *principle* is this: "A principle is that from which anything takes its rise in any manner whatever."

We often employ the term *principle* with reference to things of the mind, and so we speak of "the principles of logic," or "the principles of mathematics." Again, we use the word with reference to moral character or conduct, as when we say, "He is a man of principle," or "Some politicians have no principles." These uses of the term are justified by its definition. The principles of logic and of mathematics are the self-evident and axiomatic truths (and also truths fully demonstrated) which serve as *the source or origin* from which conclusions are drawn; or these principles are the laws of procedure which, in a true sense, *give rise* to the processes of reasoning conducted in accordance with their requirements, and to the fruits of such rightly conducted processes. Again, "a man of principle" (that is, "a man of good or admirable principle"—the expression is elliptical) means a man whose knowledge of what is right, and whose will to act in accordance with that knowledge, serve as the source or origin or well-spring of his conduct. On the other hand "one who has no principles" (the phrase is elliptical and means "one who has no proper or good principles") is a person who lacks a noble and unfaltering will to do well, and hence does not possess the moral equipment which

should be the well-spring of admirable human conduct.

A *principle* is that whence *anything* takes its rise *in any manner whatever.* A beginning is a principle, for a thing which begins takes its rise at that point. A law is a principle, for that which is in accordance with the law is, so to speak, guided into being by the law, and takes its rise there. A cause is a principle, for a cause contributes to the being of its effect, and the effect therefore takes its origin or rise in its cause.

In our present study we are concerned with the *principle of life* or the *life-principle,* and we wish to know the origin, source, or well-spring of vital activity. We wish to know whence life and life-activities come. We do not now ask about the Creator of life. We take the living body as it stands, and ask what makes it live, what makes it capable of life-activities, what there is in the living body that makes it a *living* body.

b) NEED OF A LIFE-PRINCIPLE

The living body is itself the principle of its vital operations; it lives and functions. Why, then, should we seek anything further in the way of a principle of life? Will it not suffice to say that the body itself *as a material substance,* or *as an organized substance,* or *as a substance characterized by the interplay of physical, chemical, and mechanical forces,* is the sole and adequate principle of life-activities? No; we may

not truly say so. The living body is indeed the principle of its vital operations, but it is not the *first* principle of these activities. As philosophical psychologists we must seek out the first, the fundamental, the basic principle of life in living bodies. And there is something in the living body,—something substantially united with it, yet not to be identified with its mass, its structure, its incidental forces, or its organic parts, —by reason of which the body is a living and functioning body. This "something" is the fundamental and substantial reality that we seek as the *first principle of life* in a living body.

The body is, first and foremost, a material thing; it is composed of *matter,* that is, of a three-dimensional corporeal substance. Can the material constitution of a living body be the basic source of its life and its vital activities? No; otherwise all bodies would be living bodies, which is not the case. There were certain philosophers in old Greece, from six to four centuries before Christ, who believed that all matter (that is, the whole bodily universe) is alive. These theorists were called *hylozoists,* and their doctrine *hylozoism,*—terms which derive from the Greek *hyle* "matter," and *zoe* "life." And there are some physicists to-day who hold that living and lifeless bodies are all "of a piece." But the hylozoists, ancient and modern, have not only failed to justify their contention by anything remotely resembling a show of evidence; they have gone flatly against the requirements

of reason, the testimony of experience, and the unceasingly repeated findings of laboratory tests. We need not discuss the point, for we have already proved that there is an essential difference between living and lifeless bodies. We may state our position thus: all bodies are material realities, but not all bodies are alive; therefore matter (or "materiality") cannot be the basic principle of life in living bodies. There is need to look further for this first life-principle.

The living body is not only material in constitution, it is *organic* in structure; it is an *organism*. In other words, it is a substance composed of active, heterogeneous, interdependent, balanced parts, unified and working harmoniously together by an immanent activity which tends to the well-being of the living body as a whole. If, then, the material constitution of a living body is powerless to explain its vital activities, may not its organic structure be the basic source or first principle of these activities? It cannot be so. For the organism is the *effect* of life and life-activities. Life and its functions are present in the primal cell, which, *by means of vital functioning*, develops into the finished organic body. Certainly, then, we cannot say that what is the *effect* of life-activity is the principle or *cause* of the same activity. We should not be so unreasonable as to assert that the structure of the automobile engine makes the car go; few are likely to say that who have had the exhilarating experience of paying current prices for gasoline

and oil. Yet it would be far more reasonable to ascribe the mechanical activity of an engine to the arrangement and inter-balance of its parts than to assert that the organic structure of a living body accounts for its vital functioning. For the simplest engine does not present itself to our observation as a thing *developed* by an inner power, of resistless drive and definite direction, once resident in a microscopic wheel or bolt. Further: if the organism were the basic principle of vital activity, life could not cease as long as the organic structure should endure. But a sudden death,—not *apparent*, but *real death*,—somethimes leaves the organic body momentarily intact. True, the organism begins to disintegrate and decompose immediately *after* the life-principle has departed. But how, in the circumstance here considered, could life depart if the organic structure of the body were the basic source of its life?—It may be here objected that the organism of the primal cell, and not the completed organism of the full-membered body, is the basic principle of life. The objection is a mere quibble. It simply carries the question of the life-principle from larger bodies to smaller bodies. Life in the cell or in the elephant presents the same need of explanation by a vital first principle which is neither the body-mass nor the organic structure of the living body. If you are studying the nature of wood, you do not come nearer to your goal by grinding a massive beam into minute grains of sawdust.

For the nature of wood is manifested in the smallest grain of sawdust as perfectly as in the largest log. But this metaphor of beam and sawdust falls far short of the reality it illustrates in the present instance. The grains of sawdust could not develop into a log, although a log may be computed in terms of sawdust, and considered as a simple aggregate of its grains. Not so the living body with respect to its cells. What is there in the microscopic cell, or in its organic structure, to explain its development into wholly various and interdependent parts, and into the bewilderingly complex finished organism of the living body? How does the tiny cell explain its tendency to increase and multiply, to build up bone and muscle and tissue and nerve and sinew and eye and ear and stomach and heart? Nay, how does the cell or its structure account for its simple act of growth and fission, so that two cells exist where one existed before? The cell's growth and fission, and all its further developments, are *effects* of life and of the activity of the life-principle; they are not the *causes* of life, not its principle. The cell *has* something by virtue of which it lives and grows and functions and develops. It has an indwelling power and drive which carries it in a definite and marvellously well-planned direction. The cell *has* something; it has *life;* and it has the substantial *principle* of life. And this principle is not the mere organic structure of the cell, or of the larger and more complex organism which develops

from the cell. No; we must look further than organic structure in our quest for the fundamental principle of life in a living body.

Granted that material mass does not explain life; granted that organic structure is the *effect* of life and not its explaining principle; may we not still declare that *certain physical, chemical, and mechanical forces,* resident and active in the living body, are the basic principles of vital functioning? Again we answer that it cannot be so. For the specific activities of living bodies are *immanent* in character; physical and chemical and mechanical forces or energies are invariably *transient* in their action. Life-activity is manifested as a continuous tendency to *movement,* to self-perfecting immanent action; physical, mechanical, and chemical activity tends towards *equilibrium and rest.* All the widely various activities of a living body are superbly *harmonized,* and tend to the accomplishment of a single end,—the well-being of the living body itself. This well-being is the development, the perfection, the preservation, and the propagation of the living body. No such activity is manifested by non-living bodies or their forces. Consider just one activity of a living body,—the activity of a plant in seeking and finding a required item of nourishment. Mark Twain, speaking in *Following the Equator* of the "great gum trees, lean and scraggy and sorrowful" which he saw in Australia, writes, "Once a cement water-pipe underground at Stawell began

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gradually to reduce its output, and finally ceased altogether to deliver water. Upon examining into the matter it was found stopped up, wadded compactly with a mass of root fibers, delicate and hairlike. How this stuff had gotten into the pipe was a puzzle for some little time; finally it was discovered that it had crept in through a crack that was almost invisible to the eye. A gum tree forty feet away had tapped the pipe and was drinking the water." Here we notice that no mere mechanical or chemical activity will explain the phenomenon recorded. It was not the *roots* that needed the water; it was the *tree,* and the well-being of the whole tree was served by the unusual growth of roots and the amazing accuracy of that growth through forty feet of soil and several inches of cement pipe. Nothing in the play of physical, chemical, or mechanical forces can even begin to explain the *vital* activity of the quest and absorption of nourishing elements by a living body. And if this is the case in one function of the lowest grade of living bodies, what shall be said of the much more wonderful phenomena of sensing, appetizing, conscious movement, understanding, and willing? Life is clearly not explicable in terms of physico-chemical or mechanical activity; life has not even the beginning, nor the beginning of a beginning, of an explanation in such activity. For, granted that living bodies do manifest activities of a mechanical and physico-chemical nature, these are invariably *instrumental*

to the life function, and are under the direction and control of the life-principle which applies them to its uses; they in no wise explain the life-function itself. There is need to look further for a basic life-principle in every living body.

To sum up: the material bulk of a living body is, in one sense, a principle of the body's activities, but it is not the *first* principle. The organic structure of a living body is a principle of its function, but it is not the *first* principle. The interplay of physical, chemical, and mechanical forces observable in a living body, is a principle of some of the body's activities, but not the *first* principle. There is, and must inevitably be, in every living body, an indwelling, connatural, substantial principle,—a constituent element of the living substance itself; not something merely resident inside the living body, and using the body and its members as instruments of its action,—which makes the body live, and gives it its determinate substantial character as an organism of definite kind or type; which makes the living body *a* body, a *living* body, *this kind* of living body, *this one substantial living body* with all its capacities and operations. This principle is the first, the basic, the fundamental life-principle. It is called *the psyche* or *the soul.* Some scientists and philosophers do not like the word *soul,* and go to ridiculous lengths to avoid it. They call the soul the *growth-force,* or *bathmic force,* or *plasmic energy,* or *biotic energy,* or *entelechy,* or *vital direc-*

tion, or even *the something over.* Something over, indeed, the life-principle is; something substantial, over and above the material mass of the living body, its organic structure, and the physico-chemical and mechanical activities observed as instrumentally employed in its vital functions.

c) CHARACTER OF THE LIFE-PRINCIPLE

Aristotle's definition of the life-principle is not likely to be improved. He calls it *the first act of a physical organic body.* In the definition the term *act* means *actuality* or *actualness;* it does not mean *action* or *operation;* for, as we have seen, action or operation in a living body constitutes life *in second act,* and an *action* (which is indeed an *actuality* or *act*) presupposes the fundamental actuality of the thing which acts. The definition requires a word or two of explanation.

(*a*) The soul is *the first act or first actuality of the living body.* In other words, the soul is what is called *the substantial form* of the living body. Every bodily object presents two aspects to our consideration: first of all, the object is *a* body; secondly, it is *this kind* of body. Now, all bodies are at one in being *bodies.* A bit of coal, a weed, a worm, a bird, a horse, a man, are all *bodies;* each is as truly and completely *a bodily thing* as the others. There is, therefore, some *common basic substrate in all bodies,* living and lifeless; it is that by reason of which they are *bodies.* This common

fundamental substrate does not exist *apart* from existing individual bodies; it does not exist *by itself.* It is *purely potential,* that is, purely capable of receiving existence in determinate actual bodies. And this fundamental bodiliness, this highly imperfect substantial reality which is the basic substrate of all bodies, is called *prime matter.* We must not conceive of prime matter as a definite *kind* of bodily substance; we must not image it as an original mass of dough out of which various body-biscuits are formed. No; a body that possesses a definite *kind,* exists in that kind; it is already *formed;* and prime matter is completely without *form* (i. e., without determinate being). Prime matter is purely *potential;* it is not determinate or *actual;* we may even say that prime matter is *pure potentiality.* For a body to exist, prime matter must be *in-formed;* that is, some substantial, determinate, and determining principle must join in substantial union with prime matter. By so joining (i. e., by so *in-forming* matter), the substantial determinant *actualizes* the prime matter, and a bodily being,—actual and determinate,—emerges. This determining substantial principle is called *the substantial form,* and, as is obvious, it is the first act, the first actualization, of the prime matter, and it bestows actual existence upon the prime matter in the bodily being so formed. Thus every bodily thing is a composite of *prime matter* and *substantial form.* All that is substantially determinate about a body must come

from its substantial form; for prime matter is pure potentiality, pure indeterminateness.—In passing, we must notice here that a bodily thing has a *third* aspect: not only is it *a* body, and *this kind* of body, but it is this *individual body* of this determinate kind. It will have many marks which belong to it as an individual body, such as exact shape and size and location and temperature, and so on. And all these items are *determinations,* and hence *forms.* But they are *accidental* forms. An individual body has as many *accidental forms* as it has *accidental determinations* (for these are synonymous), but it is inevitably a substance of one definite essence and nature and kind, and hence has only *one substantial form.*—We are not concerned here with accidental forms, but with the substantial form, and with the substantial form of a living body. That which makes a body an actual, definite, determinate, substantial being of one essence, nature, and kind, is its substantial form. The substantial form is the first, the basic, the fundamental *actualness* in the bodily substance. It is therefore rightly called *the first act* of the body. Now, in living things, *the first act by which the body has its being as an actual, existent body of this definite kind,*—that is to say, *the substantial form of the living body,*—is the life-principle or soul. The soul is, therefore, rightly defined as *the first act of the living body.*

(*b*) The soul is the first act of *a physical organic body.* The soul does indeed make the living body *a* body

for the soul is the *first act* or the *substantial form* of the living body, and without it the body would not exist. But we define the soul as the first act of the *physical organic body* to indicate that, among substantial forms, the soul has a special character. The substantial form of a lifeless body actualizes prime matter into a body of like or homogeneous parts. The substantial form of a living body (i. e., the soul) actualizes a body of different or heterogeneous parts; and these parts are organic and constitute an *organism,* a composite of unified, balanced, interdependent, yet different parts. The substantial form of a lifeless body is said merely to actualize a body, or, more accurately, to actualize prime matter and in-form a body. The substantial form of a living body truly does this also (actualizes prime matter and in-forms a body) but *as a soul,* as a *life*-principle, it is accurately said to actualize the organic body or to in-form the *organism,*—in other words, to in-form the *physical organic body.*

SUMMARY OF THE ARTICLE

In this Article we have studied some very important things, a few of which are involved and difficult. We have learned the meaning of *principle,* and, in special, of *life-principle.* Life is a thing to be accounted for, and we have sought its explanation vainly in the living body as a mere *material substance,*

as a substance of *organic structure,* and as a substance characterized by the interplay of *material forces* (physical, mechanical, chemical). We have discerned the need of a basic life-principle, over and beyond these. We have recognized the need of a life-principle which is a substantial, constituent element of the living body; which makes the living body what it is, and dowers it with its capacities and functions. We have called this principle *the soul,* rejecting the somewhat bizarre names which certain scientists and philosophers have invented for it. We have defined the soul, and have explained the definition. Incidental to the definition of the soul, we have indicated the meaning of *prime matter, substantial form, accidental form.*

CHAPTER II

VEGETAL LIFE

This Chapter presents a brief study of the *vegetal form* or *plant form* of life. It offers conclusive evidence in proof of the fact that a plant is really *alive,* and of the further fact that, although the plant is a *living body,* it is not dowered with *sentient* or *animal* life. The Chapter discusses the *vegetal operations,* and treats of the *vegetal life-principle* or *plant soul* with its natural characteristics. These matters are discussed in the following Articles:

Article 1. The Life of Plants
Article 2. The Vegetal Operations
Article 3. The Vegetal Life-Principle

Article 1. The Life of Plants

a) Plants as Living Bodies b) Plants as Non-Sentient Living Bodies

a) PLANTS AS LIVING BODIES

A living body must be an organic body which is capable of self-perfective immanent activity. And such self-perfective action means action which tends to the upbuilding or *development* of the body, to its *preservation* by means of constant repair and replacement of worn-out and discarded elements, and to the discharge of connatural function in *propagating* its

species or kind. Now, a plant has the capacity for such self-perfective immanent activity, and, given fair opportunity, it will infallibly exercise all of its functions. It will develop and grow to maturity; it will actively tend to maintain itself in being and perfection; it will tend to be fruitful and thus to generate other plants of its own nature, kind, and species. Therefore a plant is truly *a living body*. It is not a mere automaton or a machine-like arrangement of parts which operate under the action of physical, chemical, and mechanical energies or forces. Such forces are manifestly at work in the living plant, but they are under a direction not their own. There is a unifying and constituent principle in the plant which uses these lifeless energies or forces as the instruments of the plant's activity and various operations. This principle is *the substantial form* of the plant; it is *the vegetal life-principle;* it is *the plant soul.*

There have been in times past, and indeed there are to-day, physicists (from the atomists of ancient Greece to the Cartesians of the past three centuries and the materialists and mechanists of the present) who maintain that plants are not alive at all. But this contention stands fully confuted by the fact that plants have life-activity, and hence a life-principle, and therefore life itself. Plants are alive. The plant has its own fixed and determinate mode of action, and its action is really its own: it is immanent action, performed by, in, and for the plant itself; it is

action originated by the plant, directed by the plant, and finished by the plant. Thus, for example, a plant takes food or nourishment, and shows a nice discrimination in selecting and assimilating what suits its nature. It transforms the food into its own substance, building up and maintaining the various parts of a highly complex and delicately interbalanced whole. Now, no operation of lifeless bodies or of lifeless forces (physical, chemical, mechanical) is thus self-originating and self-directive and self-perfective. Chemical affinities, physical union, gravitation, cohesion, inertia, electrical vibration or impulse, local movements,—all these and all other lifeless forces or energies are, in non-living bodies, exercised by the wholly *extrinsic* influence of one bodily thing upon another, even when this influence ends in the substantial union or fusion of the bodies in question. There is nothing *self*-directive in lifeless activities considered in themselves. There is in them no inner drive or tendency to keep on functioning for the benefit of the bodies in which they are found; there is rather the tendency, excited externally or extrinsically, to exercise their mutual function *and have done with it;* there is a tendency to equilibrium, and rest, and inertia. Thus lifeless forces are always *transient* and *extrinsic* in their manifested activity; they show no tendency towards development, preservation, and propagation in themselves or in the bodies which they affect. Living bodies, on the contrary, tend, not to

equilibrium and rest, but to continuous, unremitting, self-perfective action; and the plant is, on this score, a truly living body. The plant, as we have seen, manifests *immanent* and *intrinsic* activity. And even when the plant employs lifeless forces (physical, chemical, mechanical) as it constantly does, it *controls* these, and *applies* them, and *directs* them, by a power not resident in these forces but *in itself*, towards its own well-being. Plants are, therefore, not to be classed with lifeless bodies. Plants are truly *living* bodies.

b) PLANTS AS NON-SENTIENT LIVING BODIES

A *sentient* living body has the powers of *sensing, appetizing,* and *moving locally.* It has the power of *sensing,* that is, the power of being *aware,* of *knowing,* by means of body-structure or organ, certain bodily objects. A sentient living body has one or more *senses,* that is, organic powers of knowing bodily objects, and among these powers the basic and fundamental and essential one is *the sense of touch* or *feeling.* The most imperfect sentient body has at least the sense of touch. Indeed, it is by the manifestation of the sense of touch that certain very imperfect animal bodies show that they are truly sentient. It is by discerning the presence of this sense that the scientist is enabled to classify the lower animals (such as the one-celled animals) as sentient or animal bodies, and to distinguish them from plants.

A sentient body has the power of *appetizing,*

that is, of tending towards what the sense apprehends as good or pleasing or desirable, and away from what is grasped as bad or displeasing or harmful. This *appetition* or *appetite* is the natural outcome of knowledge; appetition necessarily follows on sensation.

A sentient body has the power of *moving,* that is, of *locomotion.* Appetition would be a great hardship if the appetizing body could not *move* to carry out the tendency consequent upon sense-knowledge.

Now, manifestly, plants are not *sentient.* If they were, they would necessarily give some outward signs of it. Life is an inner capacity and force, but, in living bodies, it inevitably manifests itself in *organic* (and hence *outer*) action. In an earlier chapter we learned that immanent activity may be accompanied or evidenced by outer and transient effects (Cf. *Chap. I, Art. 1, b*). This is always the case with sentient activity which necessarily involves some modification or change in the organ affected by such activity. To put the matter more simply: all bodily life must be manifested in a bodily way: function follows essence. Now life-functions are ceaseless while life endures, and, in the living body, these functions are continuously exercised through and by means of the bodily organs or parts. Therefore we must say that, if plants were sentient, they would infallibly give signs of sentiency. But, as a matter of fact, plants do *not* give signs of possessing sentiency. In the first place, they are not equipped with the special organic *system*

necessary for sentient functions. And, in the second place, such parts or organs as plants have, manifest no sign, or beginning of a sign, of a tendency towards sentiency. We conclude that plants are not sentient. They are *living* bodies; but they are not *sentient* living bodies.

There is a saying, axiomatic among philosophers, that "Nature does nothing in vain." In other words, no natural thing, no natural body, will have powers that it cannot use. But if plants were sentient, their sentiency could not serve them; they could not make use of it; and, in consequence, it would be an utterly "vain" piece of natural equipment. For consider: sentiency involves appetition and the power of local movement. But plants have obviously no power of local movement; they are regularly rooted and fixed in one spot. The tree slowly sends its roots far abroad to obtain nourishment, but the tree itself does not stir abroad in quest of desirable food, nor does it move, or tend to move, to avoid the advancing axman. Conscious appetition would be a vain thing, and a great hardship, in a living body which lacks the power of local movement.

It may be objected that there are certain plants with such unusual functions that they have been called *sensitive* or *sentient* plants. There is the plant which shrinks away from a touch; and there is the plant which closes the petals of its flower upon insects. These and other "sensitive" plants are not really

sentient at all. Their reaction to outer stimulus is marked, and much more evident to the casual observer than that of more common plants, but it is a vegetal and not a sentient reaction. Every plant closes upon its food in one way or another, by the action of vessels in root or leaf or flower. Every plant reacts in some measure to certain outer agencies, and the shrinking of a flower from a harsh touch is no more wonderful than the closing of the morning-glory when darkness comes, or the drooping of certain plants because of excessive dryness or excessive moisture. These activities, far from indicating sentiency, appear, at first sight, to be merely mechanical and chemical in their nature; but, as we have seen, closer investigation shows them to be radically vital.

SUMMARY OF THE ARTICLE

In this short Article we have studied the manifestations of *vegetal life* or *plant life*. We have seen that, while physico-chemical and mechanical energies are used as the *instruments* of the plant's functions, the plant itself applies, directs, and controls these forces to its own development, maintenance, and propagation. We have seen that the plant, in its life-activities, is self-directive and self-perfective; that, in a word, the plant gives unmistakable evidence of perfective self-movement, that is, *of life*. But we have found that the plant, although truly *a living body*, has only

the lowest grade of life, and does not possess *sentiency.*

Article 2. The Vegetal Operations

a) Nutrition b) Growth c) Generation
d) Vegetal Powers

a) Nutrition

The first operation of the plant is the taking and absorbing of food. This operation is called *nutrition,* which, literally, means *the act of nourishing or feeding.* We may define nutrition as "a vital operation by which a living body transforms suitable extraneous matter into its own substance."

Nutrition is a *vital* operation. It is the activity of a living body; it originates in the living body, and is exercised by and for the living body. Thus, like all vital operations, it is essentially *immanent* in character, although it is exercised and manifested by actions that are *transient.*

Nutrition involves the preliminary functions of *taking in* the food (by roots, leaves, etc.), *digesting* the food taken in (i. e., preparing it chemically for assimilation), *absorbing* the digested food and *circulating* it through the living body to places where it is required. Then comes *nutrition properly so-called,* and the food (which has been taken, digested, absorbed, circulated) is *assimilated* and made one with the actual cell-structure of the living body. The materials taken as food are seldom composed entirely of nutritive elements; some unsuitable portions must be cast off again; besides, the discarded, worn-out, and replaced elements of the organism must be cleared away. This is effected by the function called *elimination.* In addition to the functions named, nutrition involves the *secreting* of certain juices required for the proper discharge of its processes.

The first operation of the plant, and indeed of any living body, is nutrition. We have seen that bodily life is manifested in grades, and therefore the functions of the lowest grade are common to all grades. The nutritive operation has functions of a somewhat more elaborate character in animals and men than it manifests in plants. To avoid repeating much of the present study in later chapters, it is well to append here an outline-sketch of nutrition as it is exercised in the more perfect animals and in man, and to mention the organs and functions involved in the process:

1. *Taking food.* Organ: *the mouth.* Function: *mastication; insalivation.*

2. *Digestion.* Organ: *stomach and intestine.* Function: breaking up and commingling of the food by the mechanical action of the stomach. Mixing in of the gastric juice (secreted by gastric glands) which turns the food in the stomach into a chemical mixture called *chyme.* Turning of the chyme into the intestine, where the pancreatic juice, bile, and intestine fluids transform it into a chemical mixture called *chyle.*

3. Absorption. Organ: *intestine.* Function: the true food-elements of chyle are taken into the blood,—passing through the intestinal walls by a process called *endosmosis,*—and are carried, partly by veins and partly by lymphatic vessels, to the heart, and thence, by the pulmonary artery, to the lungs, where the blood is perfected and purified.

4. Respiration. Organ: *the lungs.* Function: the blood,—a liquid which carries needed elements to all parts of the organism, and carries away used and discarded matter and harmful by-products of organic action,—is taken through the pulmonary artery (or *lung*-artery) to the lungs, where an intake of oxygen, and the discharge of its freight of carbonic-acid gas (carbon dioxide) purifies it. When laden with carbon dioxide, the blood is very dark in color; when purified, it is bright red. The action of the lungs is partly *mechanical* (bellows-like action of breathing) and partly physico-chemical (mingling of the oxygen in the inbreathed air with the elements of the blood; elimination of carbon dioxide).

5. Circulation. Organs: *heart; arteries; veins; capillary vessels; lymphatic vessels.* Function: the heart, a hollow muscle of two parts, acts like a double pump: one channel of its pressure carries the dark used blood (and its freight of new elements from food digested and absorbed) to the lungs; the other carries the red blood through the arteries to build up and maintain the organism and support its connatural

operations. *Arteries* carry the red blood to the organs (but the *pulmonary artery* carries the dark blood to the lungs); *veins* carry the used blood from organs back to heart (but the *pulmonary veins* carry red blood from lungs to heart); *capillary vessels* exist in great number at the terminations of the arteries and connect the arteries with the veins; *lymphatic vessels* (so named from *lymph,* a colorless liquid which helps bring absorbed food elements to the heart) constitute a sort of parallel system with the veins and arteries and connect with the system of veins not far from the heart.—It will be noticed that the circulation of the blood has two "circuits": one carries the blood from heart to organs and back to heart, and this is the major circuit; it is known as *systemic circulation.* The other circuit carries the blood from heart to lungs and back to heart; this minor circuit is called *pulmonary circulation,*—a term which derives from the Latin *pulmones* "lungs."

6. Assimilation. Organs: all the various parts of the organism which take from the blood the elements they need and transform these into their own substance. Function: the transforming of required elements found in the blood into the substance of the acting organ; the *deassimilation* or unloading into the blood of waste matter by the various organs.

7. Secretion and Excretion. Organs: *glands.* Function: the *secreting* glands produce fluids,—drawing the materials for these from the blood,—which the

living body requires for positive organic functions. Such, for example, are the salivary, the gastric, the intestinal glands, the pancreas, the liver. The *excreting* glands separate out a product that is to be eliminated or cast off from the body, either as simple waste matter, or as a cleanser and wash for organic parts. Such, for example, are the kidneys, the sweat-glands, the lachrymal glands (or tear-glands).

b) GROWTH

The direct effect of nutrition is the preservation and development of the organism. As the living body develops, it increases in size; it *grows*. Growth continues, in normal circumstances, until the organism has attained a state of maturity or complete development. Thereafter, the effect of nutrition is to maintain the mature body in a properly functioning condition until its term of operation is finished.

It is by means of nutrition, and as a result of nutrition, that the body grows. Yet growth is a vital operation really distinct from nutrition. Growth may be defined as "a vital operation whereby a living body, by taking nourishment, increases its quantity and tends to attain its proper size."

Growth is a *vital* operation; it is *immanent* in character, although it necessarily has outer effects which are *transient* in relation to surrounding bodies.

Every species of living body (that is, every distinct natural class, the members of which do not breed

indefinitely with members of another class) has a definite *morphological type* (a term derived from the Greek *morphe* "form," which, in the present use, indicates structure and shape). There is, in every species, a *range of size*, from minimum to maximum, within the bounds of which bodies of that species are always found.

The basic element of every living body,—plant, animal, human,—is *the cell*. The cell is a miscroscopic organism, usually somewhat rounded in shape, which contains *protoplasm* and a *nucleus*. Protoplasm (from Greek *protos* "first," and *plasma* "a thing formed") is a jelly-like material technically described as "a viscid, contractile, semiliquid, somewhat grandular substance, which forms the larger portion of the cell." The nucleus (Latin *nucleus* "kernel") is a body embedded in the cell; it is the main organ of the cell; it is the organ which serves the cell, first and foremost, in the discharge of its functions. The cell draws in food, by a process of osmosis, from surrounding substances, for the cell, being an organism or living body, manifests the operation of *nutrition*. Further, the cell *grows*, and when it has attained a suitable size, it is multiplied, each of the resultant cells being like the original cell. The growth and multiplication of cells continues; different cells of the same nature are united in *tissues*. From tissues the *organs* are built up, and the balanced union of organs makes a finished living body of the type from which the origi-

nal cell (or parent-cell) was derived. Thus, the growth and multiplication of cells,—in accordance with the vital drive resident in the original cell, which makes for the upbuilding of a definite *morphological type*,—accounts for the growth of living bodies.

It is to be noticed that the cell itself is a living body or organism. Except, however, in the one-celled animals (*unicellular* animals), the cell tends to develop into a larger and more complex organism of a definite kind (or *morphological type*). Both the cell itself and the body which results from its development and multiplication are *organisms*. It is more usual, however, to employ the term *organism* for the completed body,—that is, for the body completely *formed*, although not necessarily completely *developed to maturity*.

c) GENERATION

By the term *generation* we mean, in this present study, an active vital operation. We mean the operation of *propagating*, of *reproducing*. Generation is an operation found in all types of living bodies. It may be defined as "a vital operation whereby a living body produces, out of its own substance, another living body of the same nature."

The definition does not mean that the new living body (the *offspring*) comes completely formed out of the substance of the parent-body. It usually comes in the form of a *seed* or *germ* which is capable of

developing (and *tends* to develop) into a complete living body of the same nature and morphological type as the parent-body. In plants and in the more imperfect animals, generation sometimes takes place by the budding out of offspring already formed, or by the mere severing of a suitable part from the parent body,—such, for example, as a branch, or twig, or root, capable of sustaining life and exercising vital operations as an independent individual plant. In most cases, however, generation comes about by the development of a cell which contains elements drawn from a male and a female body of the same specific nature. This seed-cell grows and develops in the manner already described; it is the source of all the cells, however different, that go into the making of the *new organism* or *offspring*.

Sometimes the original cell (containing the male and female elements) develops into the organism outside the confines of the parent-body. Thus seeds of plants are sown in the fertile earth so that the organism may develop. Thus the eggs of certain types of animals are hatched outside the parent-body. Sometimes the original cell (seed or germ) is developed within the female body which contributed, with the male, to its formation; and then the developed offspring is *born* into its separate existence. A point to be remembered is this: generation is not *birth;* the operation called generation is exercised when the male and female elements conjoin to form an active cell

which thereupon begins to develop; the moment of this joining is called the *moment of conception;* and the moment of conception sees the emergence of a *new life,* a new and individual organism, which, in the case of human beings, has then and thenceforth the *right* to life.

d) VEGETAL POWERS

Wherever we find an operation we find a *principle* for that operation. A principle, it will be recalled, is that from which anything takes its rise in any manner whatever. Now, we know that the living body is the principle of its operations; more precisely, we know that the soul or life-principle is the principle of the vital operations. That is to say, the soul is the *first* principle of such operations. But there is need to discern the *immediate* or *proximate* principles whence arise the specific operations of living bodies. We find that there are certain *powers,* distinct one from another, and all of them distinct from the substance of the living body, which constitute the active equipment of the organism. These powers,—notably in the higher types of animals and in men,—are sometimes called *faculties,* a term which comes from the Latin *facere* "to make" or "to do." Powers or faculties are capacities possessed by the living body for *doing* something, that is, for exercising the operations proper to its nature.

In plants, and in all living bodies,—since all organisms possess the basic plant-grade of life,—there are three distinct *vegetal powers* or *plant faculties,* and these are the respective proximate principles of nutrition, growth, and generation. We call these proximate principles of plant-operation: the *nutritive power,* the *augmentative or growing power,* and the *generative or reproducing power.*

The first power manifested by the plant is the nutritive power. The most noble or excellent is the generative power. An organism is said to have reached full development or *perfection* when it is capable of reproducing its kind.

SUMMARY OF THE ARTICLE

This Article has given us a knowledge of the connatural operations proper to *plants,* and,—since all living bodies share *the vegetal grade* of life,—to *organisms* generally. We have defined *nutrition,* and have discussed the *functions incidental to this operation,* listing those peculiar to animal and human organisms in addition to those found in plants. We have defined *growth,* and have indicated the development and multiplication of *the cell* as the root-source of growth in living bodies. We have defined *generation,* which is the reproductive operation in living bodies; we have indicated the manner in which new organisms come into existence. Finally, we have learned that the respective *proximate principles* of the

vegetal operations are three *powers* or *faculties* proper to organisms (*viz.*, the *nutritive*, the *growing*, and the *generative* powers); we have learned that these three powers are *distinct from one another*, and also distinct from the substance of the living body which possesses them.

Article 3. The Vegetal Life-Principle

a) Nature of the Vegetal Life-Principle b) Characteristics of the Vegetal Life-Principle

a) Nature of the Vegetal Life-Principle

A vegetal organism, like every bodily substance, is a composite of two fundamental substantial principles, called respectively *prime matter* and *substantial form* (cf. *Chap. I, Art. 4, c.*) Prime matter is the common fundamental substrate of all bodies. Substantial form is not common, but specific; and each body is constituted in its *essential kind* by its one (and only *one*) substantial form. That whereby a body is *bodily* is prime matter; that whereby a body is an *actual* body with a determinate essence and nature is *the substantial form* of the body in question. These two things,—prime matter and substantial form,—are the two co-principles by which a bodily being is constituted. Both are *substantial;* prime matter (which has no varieties but is simple and pure *potentiality*) is the most imperfect of substantial things, and can in no wise exist by itself, although it

is not an *accidental*, that is, a mere mark, qualification, or characterization of something else. Substantial form is also imperfectly substantial (unless it is *spiritual*). In a word, prime matter and substantial form, are *incomplete*. They must come together *in substantial union* to constitute the single complete substance of a body. And when they so come together in substantial union, the body is constituted as a complete, actual, existing body of a determinate essence, nature, and substantial kind.

Now, as we have seen, the vital principle or *soul* of a living body is *the substantial form of that body*. For the life-principle or soul is the *first act* (that is, the first actualization, actuality, actualness) of the physical organic body. Therefore *the vegetal life-principle is the substantial form of the living plant*. Notice carefully the words, "of the living *plant*." The higher types of organism (animals and human beings) have plant life, but, as we shall see, a *plant* soul is not the substantial form of either beast or man. The *animal* or *sentient* life-principle is the substantial form of an animal, and the *only* one (since there is not a plurality of substantial forms in the same body); and the *rational, spiritual human soul* is the substantial form (and the *only* one) in each living human person.

Since each plant has only one substantial form, and since this one substantial form is the vegetal life-principle or plant soul, it follows that all the substan-

tial actualness or determinateness of the plant must be radically attributed to the vegetal life-principle. This conclusion is inevitable. For the only other substantial principle in a plant, in addition to the substantial form, is prime matter; and prime matter is wholly indeterminate in itself, hence it cannot be the root-source of actualness or determination of any kind whatever. Therefore it is the vegetal life-principle which makes the plant *an actual body* and *an actual organism* of the plant type. The contribution made by the vegetal life-principle (or substantial form) to each plant is actuality, substantial existence, essence, nature, organization, capacity for operation. Yet the vegetal life-principle makes this contribution only when substantially united with prime matter, or, more properly, with the organic body. Taken alone, the vegetal life-principle has not in itself the essence, nature, organization, or capacity for operation which belong to the plant; nay, it has neither actuality nor existence. It is the substantial principle of all these things *in* the living plant, which it *makes* a living plant by its substantial union with matter. For prime matter and substantial form are substantial *co*-principles; *both* are required; *both* must be present in substantial union, else the body which they should constitute does not exist. All this is mentioned to stress two important facts: first, the fact that the vegetal life-principle is the sole radical source of the actuality and operation of the plant; secondly, the

fact that the bodiliness or matter of the plant is an essential principle of its constitution as an organism.

It is evident, from the foregoing study, that the vegetal life-principle is *incomplete as a substance*, and *incomplete as a plant*. Substantial it truly is; but it has no actualness and no proper operations apart from the plant of which it is a constituent substantial part. And, being but an essential *part* of the plant-substance, it is manifestly not completely a plant. Technically speaking, "the vegetal life-principle is *incomplete* both in the order of *substantiality* and in the order of *species*." In plainer terms, "the plant soul is *itself* neither a complete substance nor a complete plant."

The vegetal life-principle is a *material* substantial form. Not, indeed, that it is *made* of bodily matter but that it *requires* matter (in substantial union with itself) in order that it may actually exist and discharge the operations of which it is the root-source. The plant soul is called *material* because, in the sense described, it *depends on matter* in being and in operation.

b) CHARACTERISTICS OF THE VEGETAL LIFE-PRINCIPLE

1. *The vegetal life-principle is simple. Simple* means uncomposed, not made of parts, and hence *not divisible* into parts. Every substantial form has the property of indivisibility or simplicity. And the vege-

tal life-principle, is, as we have seen, a substantial form. The plant soul, therefore, is not made of separable parts like the organic body. It cannot *itself* be cut up by knife or saw or other instrument.

2. *The vegetal life-principle is actually one, but potentially many.* The rose-bush, for example, is one living body. Yet a gardener may make a dozen bushes out of that one body by the simple process of cutting off suitable parts from it and planting them in fertile ground. The knife of the gardener has not divided the plant-soul *itself*, for this, as we have just seen, cannot be done. But the organism, the rose-bush, can be divided; it is not simple; it is made up of parts. And the gardener in making his cuttings (which are thenceforth so many separate and individual rose-bushes) has actualized a *capacity* or *potentiality* of the original rose-bush to become a plurality of rose-bushes. The life-principle of the original bush was, before the cutting, *actually* one; but it was such a thing *as could become multiple* (that is, it was *potentially multiple* or *potentially many*). And the cutting *actualized* this capacity. The eleven new rose-bushes are now separate and individual plants. Each has its own single life-principle which is not any longer the life-principle of the original rose-bush from which the cuttings were taken. Nor is the life-principle of any of the new bushes a part of the life-principle of the parent plant. The cuttings, until severed, were parts of the original rose-bush; as soon as they are

severed they are no longer such parts, but are now individual and complete plants. But the life-principle in a cutting was not, before the cutting was made, a separable *part* of the life-principle of the parent rose-bush. For that life-principle is *simple;* it is not composed of parts (as the bush itself *is*), and hence it cannot be divided into parts. But, while it cannot be divided into parts, it is potentially *multiple*. In other words, it cannot be *divided*, but it can be *multiplied*.

—There are various ways of explaining the phenomenon here considered. Some psychologists prefer to say that the vegetal life-principle is not divisible *per se* (that is, it has no parts *of its own* into which it may be divided) but is divisible *per accidens* (that is, divisible by reason of the divisibility of the matter on which it depends for being and operation). In other words, the vegetal life-principle is not *itself* divisible, but is *divisible inasmuch as the organic body which it vivifies is divisible* into parts which can sustain life as individual plants. Others prefer to express the matter thus: the plant-soul is *essentially simple*, but *quantitatively* it is *compounded* or *composed*.

3. *The vegetal life-principle is generated or reproduced per accidens.* This point is evident from the foregoing. A thing generated is generated *per se* or it is generated *per accidens*. Literally, *per se* means "through itself"; the phrase comes close in meaning to our ordinary expressions, "of itself" or "by itself"; sometimes the simple word "itself" makes the best

translation. The literal meaning of *per accidens* is "through that which is accidental"; and "an accident" or "an accidental" is contradistinguished from what is *substantial,* or, sometimes, from what is *essential.* The word "accidentally" is the most common translation for *per accidens,* but sometimes we must use a roundabout and wordy phrase to get the exact equivalent in English. The meaning of *per se* and *per accidens* in the present instance may be gathered from a restatement of the sentence which stands at the head of this paragraph. We may put it thus: the plant-soul is not generated *by itself;* it comes into being *with the living body* to which it belongs. Therefore, although the life-principle in a plant is an *essential* and a *substantial* constituent element of the plant (and not in any sense *an accidental*), the *mode of its coming into existence* is accidental to the generation of *the organism* which it vivifies.—In the generation or reproduction of plants, it is the entire *plant* that is generated. The plant *itself* is generated. Hence we say, the plant is generated *per se;* the life-principle of the plant, however, is generated *per accidens.*

4. The vegetal life-principle undergoes corruption per accidens. In modern casual speech the term "corruption" signifies either "rottenness" or the process by which a thing rots away. Thus we speak of the physical corruption which fills the sepulchre. Thus we speak of the moral corruption of youth by the bad conduct of their elders. But in the present instance

we use the word "corruption" in the ancient and philosophical sense. It is the opposite of "generation." Generation and corruption are not *gradual* processes; they are *instantaneous.* When, for example, a new organism comes into existence, there is a moment when it does not yet exist as an organism, and an indivisible instant later it is an organism. The gardener approaches the rose-bush, knife in hand. He begins to make the cutting. There is an instant when the part to be severed is still part and parcel with the original plant; there is a moment during the process of severing,—an indivisible moment or instant,—when the cutting ceases to be a part of the original plant and is a separate and individual plant. *That indivisible moment,* that immeasurable instant, is the moment of *generation.* Suppose again that some living body (plant or animal) is about to die. Death is instantaneous. We may speak of "dying," and consider it as something that goes on for a longer or shorter period of time; but, in such use, the term is figurative. A thing is either alive or it is not alive; there is no middle ground between the states of life and non-life. Now, the plant or animal which we consider to be at the point of death is, at one instant, alive; the next instant, it is dead. An indivisible line has been crossed; a measureless instant has intervened between life and death. Up to a certain moment, the body was alive; after that moment it was dead; and the moment itself is not measurable. That moment,

that incalculable instant, is the moment of *corruption*. It is in this sense that we use *corruption* in the present study. We assert that the soul or life-principle of a plant does not *itself* die or undergo *corruption*. No; it is the *plant* which dies. And when the plant dies, the plant-soul perishes. In other words, the plant is corrupted (here the word means *dies*) *per se*; the plant life-principle is corrupted *per accidens*, i.e., ceases to exist with the cessation of the organic existence of the plant.

SUMMARY OF THE ARTICLE

In this Article we have reviewed the doctrine of the fundamental constitution of bodies (*prime matter and substantial form*) and have learned that the vegetal life-principle is the substantial form of the living plant. We have found that the vegetal life-principle is substantial, is a substance, but not a *complete* substance. We have learned that it is incomplete both in the order of *substantiality* and in the order of *species*. Further, we have learned that the vegetal soul or life-principle is a *material* substantial form, not in the sense that it is made of matter, but that it depends on matter. We have considered important characteristics of the vegetal life-principle, and have found that it is *simple*, that it is *actually one* but *potentially multiple* in each plant, that it comes into being and perishes *per accidens* and not *per se*.

CHAPTER III

SENTIENT LIFE

This Chapter discusses the life of animal organisms, a life that is known as *sentient* or *sensuous*. It offers proof that animals are really living bodies, and that they are equipped with powers superior to those of plants, but that they lack reason. The Chapter studies the *operations* proper to the sentient organism, and the powers which constitute the *immediate principles* of these operations. Finally, it treats of *the life-principle* of sentient organisms, and discusses the *natural characteristics* of the animal soul. These matters are discussed in the following Articles:

Article 1. The Life of Sentient Bodies
Article 2. The Operations of Sentient Bodies
Article 3. The Sentient Life-Principle

ARTICLE 1. THE LIFE OF SENTIENT BODIES

a) Meaning of *Sentient Body* b) Animals as Sentient Bodies

a) MEANING OF *SENTIENT BODY*

A *sentient body* is a living body or organism which has, in addition to the nutritive, augmentative, and generative powers of the plant, some power of *knowing* through the use of bodily organ or organs; some capacity of being guided or *influenced* by such knowl-

edge; and some capacity *to act upon knowledge* by physical local movement. A sentient body is an *animal body,* or, more simply, *an animal.* And by the term *animal* we mean every bodily organism of a higher order than the plant. We use the term *animal* to indicate an essence, and we are not limited to the casual use of the term. We apply the term animal to bird or beast or insect or reptile; we apply the term to all phyla, sub-phyla, classes, orders, families, genera, species, races, varieties, and individuals studied by the biologist. We even apply the term to human beings, but it is not a term completely definitive of the human essence which is animality plus something else, namely, rationality.

An animal may be defined as an organism with sentient life. And a sentient body is necessarily an animal organism. Thus the terms *sentient body* and *animal body* (and the term *animal* as a substantive) are completely synonymous. Size and structure (the *morphological type*) is important for the laboratorian, but not for the philosophical psychologist. For animal life is as perfectly possessed (although not so complex or diversified in function) by the amoeba as by the elephant. From the standpoint of the simple essence *animal,* the mastodon and the flea on the ear of the mastodon are perfectly alike: each is *a sentient organism,* each is *an animal.*

An organism is necessarily a body endowed with vegetal life and the operations of nutrition, growth,

and reproduction. A *sentient* organism is truly an organism, and therefore possesses these operations. But a sentient organism is more than a plant. It is a living body of the *next higher grade* after the plant.

The term *sentient* means having some power of *sensing.* And *to sense* means to *know* by means of a bodily part (or bodily parts). The bodily part which serves the organism in the operation of *sensing* (or *sensation,* or *sense-knowledge*) is called *a sensory,* or, more commonly, *a sense-organ.* The fundamental animal operation of *sensing* is always manifested by sentient organisms in connection with two other capacities: the *tendency to act* on the sense-knowledge acquired, and *the capacity for actually acting* upon that knowledge by bodily local movement.

b) ANIMALS AS SENTIENT BODIES

We are all well aware that there are animal organisms in the world, and that these living bodies have the power of sensing. We know that the dog or the cat has eyes and ears, and we know that these organs serve the animals as eyes and ears serve ourselves. Plenty of evidence is given us in the manner in which animals act. An animal may be deaf or blind, and its failure to respond to sound or light is as obvious and marked as the actual response given these stimuli by animals with normal eyes and ears. Yet there have been scientists and philosophers, and notable ones too (like René Descartes, for instance) who

held that animals are not alive at all; that they are merely wonderful pieces of machinery. Descartes would have us believe that the cry of an injured animal is no more a vital manifestation than the squeaking of an ill-greased wheel, or the clatter of machinery when some part has been broken. On the other hand, there have been, and indeed now are, some who teach that brute animals are not only alive, but that they possess the power of reasoning and willing. The true doctrine, the doctrine capable of clear proof, is this: Animals (that is, brute animals, animals less than men) are sentient organisms, but they lack reason.

An animal is not a mere machine or *automaton*. For the action of a machine is the action of set and determined character; it is a matter of wheels and grooves, and driving rods, and gears. A machine acts only when some extrinsic or outside force is made to play upon its parts and set them, and keep them, in motion. And, given the same circumstances and conditions, a machine will always act in the same way. Now, an animal acts *immanently*, without application from without of an extrinsic force; and it does not always act in the same way when circumstances and conditions are the same. The racing dog may stop suddenly at his master's command; but unless he is a very well-trained dog, he will not *always* do so. The playful cur may chase the marauding tom-cat, but, having once had experience of his claws, it will not chase the cat a second time. The bird will fly in terror from the

hawk; but the same bird may face the hawk and die when there are defenceless young in her nest. No machine can give evidence of such varied action. For the rest, we have already shown that *plants* are truly alive, and the animal has all the perfection and the operations of the plant plus its own proper operations. If the lower order of organism is truly alive, the higher order certainly is.—We have seen and approved the ancient axiom, "Nature does nothing in vain." And surely nature would be engaged in the most stupendous of vanities if she went, humanly speaking, to all the bother of constructing the highly complex animal organism, furnishing it with marvellously planned organs, like eyes and ears and nose, if these things are to have no meaning whatever. And, of course, these things would have no meaning and no use if the animal were merely a lifeless machine.

The animal is truly *alive;* is truly *sentient;* but the animal is not *rational*. Certain philosophers like Damiron (1794–1862) and Condillac (1715–1780), as well as the materialists and positivists, put men and brute animals on a common plane in point of knowledge and reason. We assert that the brute animal is not rational, or, in other words, that the animal does not possess *intellect*. We often hear animals called "intelligent," but the term is misused in this connection. An animal may be alert in the use of its proper powers, but it is never intelligent, never possessed of reason or capable of intellectual activity. Animals are

possessed of what is commonly called *instinct*, and it is a very wonderful thing; we shall speak of it later in its proper place. But animals have not intellect, and, for the present study, the following proof will amply suffice.

A bodily being endowed with *intellect* infallibly does three things: he *understands* (and does not merely *sense*); he learns to use significant signs which, in normally constituted organisms of this type, takes the form of articulate *speech;* and, thirdly, he is able to *learn*, and to *improve* himself in his manner of acting. In a word, a bodily being possessed of intellect can understand, he can talk, and he can learn how to do things in a better and more convenient way. We shall say a word on each of these points.

1. *A being endowed with intellect can understand.* The phrase *to understand* does not mean merely *to sense and interpret* in an individual and concrete way, as a dog does, for instance, in hearing and obeying a command. To understand means to grasp an *essence*, to lay hold of a thing *in universal*, to apprehend a meaning *in the abstract:* and this is the function of *intellect*. If a person says to me, "I saw a beautiful flower to-day," I know what the words mean. I do not demand a picture of the flower in question, nor must I be led to look at the flower itself, before I grasp the meaning of the statement. For I know (intellectually) what *a* flower is, *any* flower, *every* flower.

I have an intellectual grasp of the *essence* indicated by the term *flower*. In other words, I have the *idea* or *concept* of the reality known as *flower*. This explains what is meant by saying that I grasp the meaning of flower *in universal*, abstracting from the individual and concrete determinants of the flower in question. I know what *flower* means *as such*. Now, an animal, a merely sentient being, does not *understand* in the true sense of that term. An animal may be trained to recognize certain words (that is, certain *sounds*) as signals or commands, but it cannot be made to grasp the sound as the expression of an idea. You may train the dog to do some definite thing when you pronounce the word "flower"; you may train the dog to bark, to whine, to run, to lie down, to stand on hind legs, or to do any one of an indefinite number of things, or a series of things, when he hears the word uttered in a particular way. There is nothing beyond the reach of *sense* in all this; there is no understanding in it, no intellect. You cannot teach the dog to *understand* the word "flower" any more than you can teach him to have an active interest in the science of botany or to gather and arrange specimens for a herbarium. But with a human being, the case is different. Once the human person has experienced what is meant by "flower" (and, indeed, his knowledge must *begin* with the senses) he goes on to form the idea or concept of what a flower essentially is. And so he understands the statement, "I saw a beautiful

flower" without having to see the precise individual flower; he understands, indeed, without having to inquire about the sort of flower indicated; he understands without knowing whether the flower referred to be rose, or violet, or aster, or lily. And the case would be the same if the statement were, "I saw a rose." The human person would understand "rose" in universal, or in general; he would understand in the abstract, without being told that the rose was large or small, of this variety or that, in budding form or in full flower. For the human person (having had some sense-experience of certain individual roses) *understands;* he grasps the *essence* indicated by the term *rose;* he knows what *a* rose is as such, what *any* rose is, what *every* rose is.

An amusing tale is told of a stolid pupil in geometry class, who demanded an explanation of the statement, "Two angles equal to a common third are equal to each other." The teacher said, "Suppose I have three hats here on the desk. Hat number one is precisely like hat number three. Hat number two is also precisely like hat number three. Now, what must I conclude about the resemblance of hats number one and two?" The pupil answered, "I'd have to see the hats." Naturally, there was uproar in that classroom. And why? Because the pupils saw the absurdity of the dunce's reply. And why did they find the reply absurd? Because every one of them knew precisely what is meant by *hat,* and by *likeness,* and *unlikeness,* and *resemblance.* They knew these things in general or in universal. They had no need to have the hats before them as "these three silk hats" or "these three straw hats" or "these three old hats" or "these three expensive hats." No; they *understood;* they had a grasp of the essential meaning of the terms used; they knew what is meant by *hat as such,—a* hat, *any* hat, *every* hat. In a word, their grasp of the meaning of the term *hat* was *abstract* (that is, independent of considerations such as shape, size, color, material, style, price, of any one individual hat, or of any collection of hats) and *universal.* For the pupils had *intellect,* and not *sense* merely.—Even the dunce knew what *hat* means. If he was befuddled by the technical phrasing of the axiom about angles, he none the less knew what *angle* means,—*any* angle, *every* angle, angle *as such.* And he knew what was meant by *equality* in angles or in hats. Otherwise, he could not even have put his question or have made his demand to see the hats.

It is the mark of a being endowed with intellect that he *understands;* that he grasps *essential meanings;* that he lays hold of essences *in a universal way;* that he knows things *in an abstract manner;* that he can unite, distinguish, differentiate, and elaborate the elements of his essential knowledge, and so can draw conclusions and exercise the power of reasoning. All this is the function of intellect. And no animal,—not the cleverest animal in the circus, nor the "most intelligent" of household pets,—gives any sign, or the

beginning of a sign, of possessing such a power or such a function. We are forced to conclude that while brute-animals have *sentiency,* they have not reason or *intellect.* Brute animals are *non-rational* animals; only man is a *rational* animal.

(2). *An organic being endowed with intellect can use significant speech.* This point follows from the foregoing. For a human being,—the only organic being endowed with intellect,—not only *forms* ideas and elaborates processes of reasoning; he *expresses* these things; he *communicates* them. This fact makes instruction possible; if it were not a fact, we should have no teachers, not even teachers who teach that animals have intellect or that man hasn't. And the expression and communication of ideas, thoughts, essential meanings, reasonings, is managed by intelligent (or intellectual) beings through the invention and use of some code of sounds or signs or gestures. Human beings are well equipped for the utterance of varied, modulated, articulated *sounds;* they have organs admirably suited for such utterance, and obviously designed for it. The normal human being learns very early in life to imitate, to understand, and to use *the articulated speech* of those habitually about him. Now, the mere utterance of sounds, even of such as have a sentient significance, does not constitute *speech.* The tiny baby will cry when in pain, will laugh with delight, will coo with pleasure. The baby will utter sounds, and the sounds are expressions of *sensed* realities; but these sounds are not *speech;* they are not evidence of functioning intellect. For, while the baby has intellect, its intellect is not yet in adequate use; just as the baby has legs, but has not yet the use of them in walking. Experience, and *sense* experience, must serve the baby before his intellect can form ideas and acquire a usable system of them. Nor, when he has acquired the use of intellect, will the child entirely cease to use "animal sounds" which are the expressions of sensed realities; even as a man, he will sigh, and sob, and yawn, and groan, and will cry out when he experiences sudden pain. But the child will not be *limited* to "animal sounds" very long. And an animal, young or old, is always limited to such sounds, —to sounds which express *sensed* realities. The angry growl of a dog or his bark of joy; the cooing of doves in the mating season, or the chattering of monkeys,— these and all other "animal sounds" are always merely sentient in character; they always fall short of intellectual significance. Even those who like to say that "animals talk to one another" cannot force themselves to believe it. Even these (somewhat sentimental) persons cannot refrain from smiling as at an absurdity when some instance of animal "speech" is recorded as though it were a fact; they cannot, for instance, receive, with serious faces and assenting minds, the famous story of the blue-jays' pow-wow as told by Mark Twain in an early chapter of *A Tramp Abroad.* Nor could the exponents of animal "intelligence" ac-

cept seriously the same humorist's acount of the comments passed by a ship's parrot on the occasion of the passengers' concert. The parrot in question was perched in the lounge where the concert was held, and he made a free running commentary upon the offerings of the performers. After a lady had sung, with much feeling, the old song which begins, "Home again, home again, from a foreign shore . . . ," the parrot strode back and forth on his perch, swore horribly, and declared that "he wouldn't give a hang for a tugload of such rot." The criticism killed the concert; there were no more songs; and the parrot leaned up against the bars of his cage and "laughed himself hoarse for joy." Of course, these humorous accounts of animal "speech" are human concoctions; but why, if animals could really be regarded as intelligent, would these fictions be regarded as so deliciously funny? Mr. G. K. Chesterton, in *The Everlasting Man*, makes some notably pointed observations on the subject of "animal intelligence" and "animal speech." He tells us of the poet who rises early to catch the glory of the sunrise and to express his sentiments about it in a sonnet. He adds that the cows in the field give us no sonnets on sunrise, although admirably situated for viewing many rosy dawns. We shall wait a long time before we notice the gambolling sheep or the winging skylark gaining the attention and applause of fellow-animals for such lines as

> Full many a glorious morning have I seen
> Flatter the mountain tops with sovereign eye.

And, although "the lark, at break of day arising, sings hymns at heaven's gate," the hymns are not expressed in intelligible speech, and we shall probably wait in vain for the publication of a skylark Watts.

Animals may be trained to utter at command certain sounds,—barks, or growls, or neighs, or grunts. Certain sentient beings may be trained to imitate the sound of human speech. But the most enthusiastic believer in animal intelligence would not profess to find in these sounds *an animal language*. Yet the parrot, for example, could, if it had intelligence, *learn* human speech even as a child learns it; such a parrot could be educated; it could be schooled; it could, in time, become a glamorous Bachelor of Arts. No parrot has, as yet, been graduated by an American university. A dog, however, has had that honor; he was made a Bachelor of Caninology by a publicity-seeking university in the hinterland in June 1935. We await with interest the publication of his dissertation.

It is a mark of an organic being endowed with intellect that he can learn to employ intellectually significant speech. Brute animals give no sign, nor the beginning of a sign, of a capacity for such utterance. We are forced to conclude that brute animals, while *sentient*, are not endowed with *intellect*.

3. *An organic being endowed with intellect can*

improve his mode of action. An intelligent being can understand, can communicate understanding, can give and receive instruction, and can *show the fruits of instruction;* he can also show the fruits of *understanding* and personal *reasoning.* A boy can be taught the use of carpenter's tools. He can be made to understand the use of such tools, partly by being told about them, partly by having the instruction exemplified, partly by practice in their use. And thus, in time, the boy may become an expert builder. Another boy, lacking all instruction and all opportunity to handle tools, will not become an expert builder. But a little bird becomes an expert builder of a certain type of nest, entirely without instruction; and no amount of instruction will make that bird the builder of a different type of nest. Bees do not come together, even once in a century, to discuss an improved honeycomb. The bees do their work well, but there is no improvement in the product of their labor; what Virgil, the poet, said of bees two thousand years ago is just as true to-day as it was in that long-vanished time. A spider spins its web; it needs no schooling or instruction in the art; nor does it show any variation in the type of web it weaves. With man, an intelligent being,—an organism endowed with intellect,—it is not so. The whole history of mechanical invention is a proof of the point. Man can and does use his intellect to devise new and improved dwellings, conveniences, means of communication and transportation.

Some experimental psychologists like to observe the behavior of animals imprisoned in a labyrinth; to notice how the imprisoned animal learns to make its escape, and how, upon repeated trials, it makes its way to freedom more and more easily. This sort of thing does not affect our present contention in any way. We ask whether the animal shows any improvement in its method of attending to its natural needs; and the manifest answer is that it does not. You can teach a rat to escape from a labyrinth; you can observe how it makes its way out of the prison, and learns to escape more and more readily. But you cannot teach a rat to make an improved style of rat-hole, or to construct a comfortable rat-house of tiny bricks.

It is a mark of an organic being endowed with intellect that he can improve his mode of action, his methods, his products. Brute animals give not even the beginning of a sign of such a capacity. We are forced to conclude that brute animals, while *sentient,* are not endowed with *intellect.*

The natural tendency of a sentient organism, and indeed of every being, carries it toward what is suitable and good for it. In man, as we shall see in a later chapter, this tendency may be baffled in some of its effects by perversity of judgment and abuse of the freedom of choice. But in merely sentient organisms, activity proceeds according to definite, predetermined plans, and produces astonishing results. A man, when he has at last weathered the long years of weakness

and immaturity, knows well enough that he has need of food and shelter, and he is aware of many a convenience that he might find a profit and a pleasure. But he has to study out ways and means of providing himself with these things, and no two men would,—uninstructed and uninfluenced by word or example of others,—work out the problem in precisely the same way. With an animal, however, the case is flatly reversed. The animal passes into maturity (usually in a much shorter time than man requires) and proceeds to attend to its needs; and the members of a given species of animal will do the work in the same way. You might put three men on three desert isles, and you would find later that one had made himself a shelter of stones, another had found a cave in the rock, and a third had fashioned a sort of cabin of saplings and chopped boughs. Nor would there be much resemblance in the style or size of their habitations, even apart from the materials used in their building or arrangement. But three birds of the same kind loosed on three desert isles would make nests of the same style and pattern. And three swarms of bees would make the same sort of honeycomb. Nor would birds or bees require instruction in the work, or have to make trial of this and that before settling down to the building of what they require.

The beaver takes no instruction in the art of building dams, but produces, none the less, a work of such balance and finish as to excite the admiration of carpenter, joiner, and engineer. The bee studies no blueprints, but the architecture of the comb is flawless. There is a certain sort of beetle (*Rhynchites betulae*) which cuts and rolls a particular kind of leaf, and closes and seals it as a nest for her developing young; and the manner in which this piece of construction is "laid out" and executed would do credit to a master engineer, with all the higher mathematics in his head and the finest of draughtsman's tools on his table. There is a wasp (called *sphex*) which requires living food for her young, and she pierces the spine of caterpillar or spider *in the exact spot necessary to produce paralysis but not death;* then she places the helpless victim in her nest so that her new-hatched grubs may find their proper diet provided.

Animals not only make the things they need; they also avoid what is harmful. The young chickens may never have seen a hawk, but they are flutteringly aware of his presence in the neighborhood all the same. The sick dog searches out certain grasses, and finds what he seeks, without medical advice or the need of a prescription. Cattle will avoid poisonous herbage without being warned against it and taught methods of recognizing it. Sheep will fly from a wolf without pausing to find whether his advances be friendly. Thus animals show a constant tendency to take care of themselves: *positively,* by making or arranging what they require; *negatively,* by avoiding what would be harmful. And this holds for the *kind*

or *species* of the animal even more strongly than for the individual. The drive of nature is to perpetuate the species; not to let it die out or be destroyed; and the welfare of the young is therefore of greater concern to nature than the welfare of parent animals. The bird will fly away from the cat to protect itself. But the mother-bird will often forget herself, and face death, to defend her young fledglings from the cat.

Now, in all this we discern the workings of a particular *sense*,—an *interior* sense, which the philosophers of an older day called "the estimative power" (that is, the power for estimating or judging what is useful, necessary, harmful) or simply "the estimative," and which is now usually called *instinct*. Man has instinct too, but, since he has the higher light of intellect, he uses instinct less than animals do, and is less practised in its exercise; besides, man needs it less. It is usually of occasions of stress, of sudden action, of sharp alarm, or of preoccupation, that we speak, when we say a man "acts instinctively." But animals act instinctively all the time. And so wondrous is the product of their instinctive action that many scientists and philosophers have been led to the mistaken conclusion that animals possess intelligence or intellect. There is a vast difference, however, between instinct and intellect, and we shall presently indicate a few points of this diversity. But there is another thought that must first be suggested.

If animals possess intellect; if the wondrous work of beaver, and bee, and beetle, and wasp, and bird, and dog, and cattle, be really a work intelligently planned and executed, *then the intellect of animals must be immeasurably superior to that of man.* A young man, uneducated and uninstructed, cannot plan and execute a masterpiece of engineering and carpentry; but a young beaver can do it, and does. The bee is an architect and builder without schooling or learned degrees, but a man requires long and tedious training before his mind and his hands will serve him adequately in the architect's profession. The beetle described above is, if intelligent, a master mathematician and craftsman, and should be the holder of an honored chair in a university. And we should send our surgeons to the *sphex* (if she be intelligent) for post-graduate courses in instant diagnosis and infallible incision. Yes; if animals have intellect, it is a far better intellect than man's. And yet,—this is the surprising thing,—this matchless intellect (if it be an intellect) has produced nothing in all the ages of the world but *an admirable routine*. There is nothing new in its product, nothing fresh, nothing varied. Surely, an intellect such as this would startle the world with its inventiveness and its "infinite variety." Thus we see that the naïve explanation of animal activity as the product of intellect, is a little too simple to be true. The assertion that animals think, and reason, and understand what they do, does not untangle a complex

problem; on the contrary, it presents a problem of inexplicable and inextricable tangles.

Let us look now at some points of difference between intellect and instinct.

1. Instinct is an organic faculty; intellect is inorganic and spiritual. Instinct is a *sense,* and an *inner* sense; it is organic because it is served by an *organ;* its organ is part of the brain. In consequence of the fact that instinct is a *sense,* its object is some individual and concrete thing present here and now. Intellect is not limited to the concrete and individual objects here and now present. Intellect grasps things in the abstract, in universal. The bee draws nectar from this flower and that, and carries its treasure home. But the bee is incapable of reasoning about flowers in general, or of methods in the abstract, and cannot consider ways and means of making better honey or of turning out the commodity with less effort. But the least instructed man can reason about his work, can consider ways and means of getting it done. In a word the bee executes a splendid plan—but the plan is not its own. The man makes his own plan, or may make it, even when he fails to execute it. For the man has intellect, which is not an organic faculty, but a power of the spiritual soul. Of this we shall speak in detail in another place.

2. Instinctive knowledge is inborn and antecedent to experience; intellectual knowledge is acquired, and presupposes experience. The yearling bird knows how to make its nest without instruction and without watching the parent birds. The human builder needs plenty of instruction and much practice before he can turn out an admirable product. Human beings *learn* how to do what is required to provide themselves with the necessaries of life; animals do not learn, they know without learning.

3. Instinct is not inventive; intellect is endlessly working out something new. The history of intelligent beings (of men) is a story of progress in the liberal and mechanical arts. But animals give no sign of novelty or improvement. In matters of mind it is possible, in matters of mechanical art it is usual, for one generation of men to take up where the last generation left off. But one generation of animals of a given species does not take up where the last left off; each generation does the same sort of thing (in providing for natural needs) and in the same sort of way.

4. Instinct is limited to one or a few manifestations; intellect is almost boundless in its capacity. A bird can build a nest, a bee can make honey and honeycomb; but bird and bee cannot exchange services. But a man can learn a great variety of arts, and, indeed, never reaches a stage where he can learn no more. An animal is master of one "trade"; man is jack-of-all-trades, even if he master none.

5. Instinct is changeless in its manifestations; intellect applies its knowledge in an endless variety of

ways. The instinct of animals makes them do certain things in a certain way. The intellectual knowledge of men is changeless in the fact that it is a grasp of unchanging truth, but the applications of that truth are variously made by various individuals. Certain basic mathematical truths, for example, are so applied by intellect that we have such various products as chemical formulae, the science of aero-dynamics, and the theory of music.

SUMMARY OF THE ARTICLE

In this lengthy Article we have studied the meaning of *sentient body* or *sentient organism* or *animal organism*. We have proved that brute animals are truly living bodies and not automata. We have proved further that, while *sentient*, animals are not endowed with *intellect*. In support of the latter fact we have mentioned three outstanding characteristics of intellectual organic beings, viz., the power of knowing things in universal and in the abstract; the power of using intelligently significant speech; and the power of improving the mode of action. We have found that none of these characteristics is found in any merely sentient being, and have therefore concluded that brute animals are not intelligent. We have made a short study of *instinct;* we have noticed the astonishingly adequate nature of its product; we have found, nevertheless, that instinctive activity is not an evidence, in any sense, of the presence of intellect. We

have contrasted *intellect* and *instinct*, and have noticed several striking points of essential difference between these faculties.

Article 2. The Operations of Sentient Bodies

a) Vegetal Operations b) Sensation c) Appetition
d) Locomotion e) Sentient Powers

a) VEGETAL OPERATIONS

We have already learned that life in bodies is manifested in essentially distinct *grades*. Therefore, life of the second grade will possess all the perfection of life of the first grade, and will add thereto its own proper and essentially different perfection.

Animals or sentient bodies are living bodies of the second grade. Hence animals possess all the perfection of living bodies of the first or lowest grade (i. e., *plants*) and, in addition, possess their own proper perfections which are essentially different from (and superior to) those of plants.

It is manifest that animals have the vegetal operations; hence they have the vegetal powers or faculties which are the proximate principles of those operations. Animals take nourishment; they grow to the mature state of their type; they tend to reproduce their kind. Nutrition, growth, and generation are as manifest in animals as in plants. But the essen-

tial specific distinction of animals as compared with plants, lies in the fact that animals possess, in addition to vegetal operations and powers, the sentient operations and powers which we are to consider in the following paragraphs.

b) SENSATION

The term *sensation,* frequently used in casual speech to indicate an unusual or startling occurrence, means, in the present instance, *a vital operation.* It means *the activity of sensing* which is found, in greater or lesser degree of complexity and perfection, in every animal organism.

To *sense* an object is to react consciously to an impression received from that object through bodily organs or sensories. *Sensation* is the conscious reaction, by or through bodily parts, to bodily impression. Sensation is a *knowing* activity; it is *an awareness.* It is the awareness in an animal organism of bodily reality manifested by the qualities (common and proper) of such reality,—qualities such as color, sound, shape, hardness, desirability, harmfulness.

When we say that animals have the operation called sensation, we mean that animals are equipped with *a knowing power* suited to their nature and needs, and that they actually *exercise* such power. The point needs no proof. We have already identified animals as *sentient* organisms; we have proved that they

are not mere automata or wondrously constructed machines; we have seen that they react to bodily impressions, that they receive such impressions through organs, and are manifestly aware of the bodily realities whence the impressions come. Thus the dog comes when called; he hears the call, and hearing is *sensation.* He sniffs his food; and smelling is *sensation.* He gives evidence of relishing some foods and of finding others unpleasant to taste; and tasting is *sensation.* He cries out when injured; and feeling is *sensation.* He sees objects; and seeing is *sensation.*

Animals are obviously equipped for sensation. The higher animals have organs well adapted for external sensation, and it is a matter of daily experience that they use these organs in sensing, even as we human beings use similar organs. The lower orders of animals (such, for instance, as the amoeba) give evidence of possessing the sense of touch or feeling, and the entire organism appears to be the organ for this sensation.

The exercise of acts of sensation is the test and identification employed by scientists in determining whether an organism is plant or animal. Animals are known, and their essence is defined, in terms of sensation. There is, therefore, no need of elaborating a proof of the manifest fact that what we know as *an animal organism* is an organism fitted for sensation and actually exercising this operation.

c) APPETITION

Appetition, like sensation, is a *vital,* and therefore an *immanent,* operation. It is an operation by which an animal organism is moved to do or to acquire what the senses apprehend as good to do or desirable to have. It is a tendency consequent upon sense-knowledge or sensation. Technically, we may define *appetition* (a term which, with *appetite* and *appetency,* comes from the Latin *ad* "toward" and *petere* "to seek" or "to strive") as *an immanent operation by which an animal is inclined towards that which the senses apprehend as good.*

Every being, living and lifeless, tends to what is suitable or good for it. A being, in other words, tends to fulfill the functions of its nature. Thus, the parts of a body tend to cohere; bodies tend to obey physical laws, such as the laws of gravitation and inertia; certain chemical substances tend to form compounds; the plant tends to grow to maturity and fruitfulness; an organ tends to do the thing it is made for, and thus the eye tends to see, the ear to hear, and so on. In all these examples we have instances of what is called *natural appetite* or *natural appetency:* it is the *natural striving-towards* or *seeking-after* that which is in line with the functions of nature and the maintenance of natural powers. Thus all beings, lifeless and living, non-sentient and sentient, manifest *natural appetency* or *natural appetite.* But *appetition* is an appetency or appetite *which follows upon knowledge* and is

aroused by knowledge. And sense-appetency or *sense-appetition* is that appetency which is aroused by, and follows upon, *sense-knowledge* or *sensation.* It is of this *sense-appetition* that we speak in the present study.

Simple sensation,—that is to say, sense-*knowledge,*—does not fully explain animal behavior. There is in animals a manifest *tendency to act on knowledge.* This tendency is *appetition.* The dog sees food and smells it; but the simple seeing and smelling do not explain the *attraction* which the dog finds in the food. He senses the food, and this sensation evokes the second animal operation of appetition. The dog *knows* the food (sensation) and he *wants* it (appetition). If the dog be sick, or fed to repletion, he refuses the food. Yet appetition is as manifest in the refusing as in the taking of the object sensed. Here sensation makes the food known as *a good thing to avoid.*—The beaver in constructing its dam senses the materials used and senses (by instinct) the desirability of doing the work, although the beaver has, of course, no grasp of purpose or finality in the work. It senses the materials as good to use, and the task as good to do. Upon sensation follows the tendency to act in accordance with it; in a word, *appetition* follows.

If animals were without appetition, the dog might starve in the very presence of suitable food, for the dog, in this case, would see and smell the food without experiencing the impulse or desire to take it. If

there were no appetition in sentient organisms, the bird would see straw and twigs, but she would not build a nest, for there is nothing in the mere seeing of materials to stir her to the task of building. Without appetition, animals would not, and indeed could not, exercise many of their natural functions. But it is a matter of commonest experience that they *do* fulfill their functions. It follows inevitably that animals possess the power, and exercise the operation, of *appetition.*

d) LOCOMOTION

The most obvious manifestation of the fact that animals possess sensation and appetition is seen in this: that animals *go after* what is sensed and appetized. An animal *carries out* the tendency of appetition, which is evoked by sensation, and so it *moves* into action. We know that the dog senses food and wants it from the fact that he *goes to it* and eats it. Appetition follows sensation; *movement* follows appetition. Movement which has its roots in knowledge is called *spontaneous* movement. Now, the spontaneous movement of an animal in response to sensation and appetition is called *locomotion.*

Locomotion (from Latin *locus* "place," and *motio* "movement") is *the vital, or immanent, operation by which an animal moves itself spontaneously from place to place.*

Sentient organisms are all endowed with some capacity for locomotion, and, when normally constituted and uninjured, they all exercise it in some degree.

Every movement of a body from one place to another is called *local motion,* but unless such movement is the spontaneous self-movement exercised by an animal organism, it is not *locomotion.* Locomotion is a *vital* capacity and operation. It is the third operation of sentient organisms. Now, there are movements, even within the animal organism, which are not manifestations of *locomotion.* The heart moves; the lungs have a bellows-like motion; there is movement in the blood-stream, and in the stomach and intestines of the animal. These movements are not spontaneous; they are not consequent upon knowledge, but take place independently of knowledge; they are called *automatic* movements. Some of these movements *may* follow knowledge; a man, for instance (and man is a rational *animal*), may deliberately and knowingly inhale and exhale. But knowledge is not necessary to the natural and automatic function of breathing, and ordinarily one breathes without adverting to the operation at all.

That animals move about, within greater or lesser area and with more or less alacrity is a patent fact. Sensation defines the animal, but movement is the determinant of sensation, and unless the animal could react to the sensed stimulus, it would not, in many cases, be possible to tell whether the organism were plant or animal, or even whether the organism were

really an organism, that is, were really alive. Locomotion is a mark of sentient life.

e) SENTIENT POWERS

Every operation has its *principle*, and its *proximate* principle; it has its active source. The animal organism is the principle of animal operations, but not the *proximate* principle. The animal possesses a power or faculty or capacity for its operations, and it is by reason of such capacity that the animal is enabled to exercise its operations. And the animal has as many distinct faculties or capacities or *powers* for operation as it has distinct kinds of operations.

The animal operations are six in number. First, there are the three operations common to all organisms, viz., nutrition, growth, generation. Then there are, in animals, the operations which belong to an animal as a distinct essential kind of organism, i. e., a *sentient* organism, and these are the three operations we have just now considered, viz., sensation, appetition, locomotion. Six distinct vital operations must come from six distinct vital powers. We therefore assert that the animal is equipped with six vital faculties or *powers of operation*, and these are: the nutritive power, the augmentative or growing power, the generative or reproducing power, the sentient or sensing power, the appetitive power, and the power of locomotion.

These powers, rooted in the animal, and actual by

virtue of the sentient life-principle, are not to be identified with the organism itself or with the life-principle itself. These are powers which the animal *has*, not powers which the animal *is*. These powers are the proximate or immediate principles by which the animal exercises its connatural operations, and they are distinct from the organism, and distinct one from another.

SUMMARY OF THE ARTICLE

This brief Article has set before us a schematic study of the *sentient* or *animal* operations and powers. We shall elaborate this same matter with much detail when we come, in a later Chapter, to speak of the sentient life of man. Here we have learned the meaning of *sensation*, *appetition*, and *locomotion*. We have defined these operations, and have illustrated their exercise. We have noticed that the respective operations are distinct one from another, and come from distinct capacities, faculties, or *powers* of the sentient organism.

Article 3. The Sentient Life-Principle

a) Nature of the Sentient Life-Principle b) Characteristics of the Sentient Life-Principle

a) NATURE OF THE SENTIENT LIFE-PRINCIPLE

We have already seen that every bodily being is made of prime matter and substantial form. Further,

we have learned that in *living* bodies, the substantial form is the vital principle or soul. It is obvious, therefore, that the substantial form of an animal is its life-principle or animal soul.

Now, animals manifest the operations of *two* grades of life. They have the *vegetal* powers and operations as well as those distinctively *sentient.* The question may, therefore, arise: Have animals two souls each, or only one; and if they have but one, is this a vegetal soul with animal powers, or an animal soul with vegetal powers? The answer is this: Animals have each but one life-principle or soul; and this single life-principle is the *sentient life-principle* or *animal soul* which is at once the radical principle of the vegetal and sentient operations of the animal organism. An animal is possessed of life in the second grade or degree (sentient life) and this grade necessarily includes the perfections of the first or lowest grade. Therefore, the animal soul is at once vegetal and sentient. More precisely, the sentient life-principle (that is, the life principle of a sentient organism) *is also vegetal.*

There is, of course, only *one* life-principle in any organism. For the life-principle is the substantial form of the organic body, and there cannot be, in the same bodily substance, a plurality of substantial forms. Now, the animal is a sentient organism; sentiency is distinctive and definitive of its very essence. Hence the one substantial form of the animal organism is the principle of its sentient life. But its sentient life involves the vegetal life. For many animal functions mingle the operations of the two grades of life in an inextricable manner. The animal reproduces, and generation is, in *itself,* a vegetal function; but the product of animal reproduction is a sentient organism: a vegetal function and a sentient product. The same thing is observed in nutrition and growth as manifested in animal organisms: these operations are, taken in their essential character, *vegetal* in nature; yet, in animal organisms, the thing that takes nourishment and grows is *sentient,* that is, the animal and its organic members. Hence we assert that the animal soul or sentient life-principle is *at once vegetal and sentient.*

Some philosophers refuse to admit that the plurality of substantial forms in a single body is a definitely impossible thing; they regard the matter as still an open question. We hold this position untenable, but we shall not pause to discuss it here. We merely offer, in addition to the reasons mentioned in the last paragraph, some items of evidence which prove beyond quibble that there is only one life-principle in each animal organism:

1. If the animal were not a single, but a dual substance; if there were in the animal two life-principles or substantial forms, one vegetal and the other sentient, we should find it impossible to explain why the operations of both principles should *cease at precisely*

the same moment, that is, at the moment of the animal's death. We should, that is to say, find it impossible to explain why this is *always* the case. For plant-life can exist and manifest itself in its proper operations without sentiency; it does so in grass and trees; why should it not go on in a dog that has ceased to be sentient?

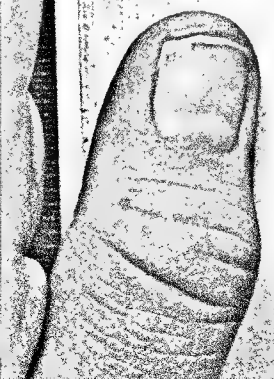
2. If there are two life-principles in an animal we shall find it impossible to explain their *continuously unvarying harmony* of operation. There is never a "conflict" between the vegetal and sentient functions of an animal, not even in minor manifestations. The growth of an animal does not, for example, develop a type satisfactorily vegetal but unwieldy for sentient functions.

3. If vegetal and sentient life-principles exist separately in an animal we find it impossible to explain *the essential interdependence* of vegetal and sentient operations in the same organism. We have instanced examples of this just now when we spoke of the sentient life involving the vegetal operations, and of the two being inextricably bound up together. To illustrate further: the more perfect animals, at least, sense their food before taking it or even before finding it; thus, the sentient operation is necessary for the vegetal operation of nourishment. On the other hand, defective function in the vegetal order may impair sentient operations: thus, a sick animal (defective in vegetal function) is not so perfectly alert and capable

in its sentient operations as an animal in sound health.

The animal soul or sentient life-principle is a single principle which is at once vegetal and sentient. But it is none the less *essentially* different from the life-principle which is merely vegetal and not sentient, that is, from the plant soul. Function follows essence (*agere sequitur esse*), and essentially different and superior functions or operations indicate an essentially different and superior principle whence they proceed. Now, as we have seen, the functions or operations of the animal as such are essentially different from, and superior to, the functions and operations of the plant as such. In other words, operations of plants and animals indicate the fact that here are *two* essences; and the difference between two essences is an *essential* difference. The animal, indeed, has the operations of the plant, and it manifests these more perfectly in its own way than they are manifested in a simple vegetal organism. But you cannot say of an animal that it is merely a plant. It *has* plant-operations, but it has *more;* it has operations more complex and admirable than the plant can exercise; it has *sentient* operations. Therefore, the animal is not only possessed of a different essence than that of the plant; the animal's essence is also *superior* to that of the plant.

The sentient life-principle is,—like the life-principle of a plant,—a *material* substantial form, a *material*



life-principle, a *material* soul. It is not, indeed, made or constructed of bodily parts, but it *depends* for its existence and its operations upon the organic body, which is material in structure. The sentient life-principle *depends* on matter; without the body it does not have actuality or function; therefore, it merits the designation of *material.*

The sentient life-principle is *incomplete* both as a substance and as an animal. Manifestly, it is not an animal, but an essential constituent *part* of an animal. Nor is it a complete substance, for it is not fitted to exist by itself, but depends upon the organic body for existence and operation. Therefore the sentient life-principle,—like the life-principle of a plant,—is "incomplete both in the order of substantiality and in the order of species."

To sum up: If we are asked to describe the nature of the sentient life-principle, we say: (*a*) that it is an incomplete substance which,—joined with the organic body of which it is the first substantial act,—constitutes the sentient organism or animal as a complete, existing, functioning living body of the second grade of organisms; (*b*) that it is a single actuality in each organism, and is at the same time sentient and vegetal; or, more precisely, that it is the root-principle of both the vegetal and the sentient operations of the animal oganism; (*c*) that it is a *material* substantial reality, in the sense that it has an essential dependence on matter for its existence and operations.

b) CHARACTERISTICS OF THE SENTIENT LIFE-PRINCIPLE

1. The sentient life-principle is simple. It has no formal parts; no parts *as such;* no parts *of its own,* even though it is the vivifying principle of an organic body which has such parts. For the sentient life-principle is the substantial form of the animal body, and every substantial form has the property of simplicity.

2. The sentient life-principle is actually one, and, in the more perfect animals, it is not potentially multiple. Some of the lower, less complex animals, such as worms, may be divided into parts, and each part will continue to live, and will exist as an independent and complete individual organism. But among the higher animals this is not the case. There is nothing in the animal life-principle itself to balk potential multiplicity, for it is a material principle dependent on a divisible organism. But the great complexity and diversified functions of the higher animals appear to constitute an insurmountable obstacle to multiplication by simple partition of the organic body. The higher animals are multiplied by generation only,—that is, by the organic functional process,—and not by partition or division of the organism.

3. The sentient life-principle is generated per accidens. When animals generate or reproduce, the offspring is not a life-principle, but *an animal,* and this animal *has* a life-principle. The animal is generated

per se; it is the thing which is directly reproduced; and *with* it, so to speak, the life-principle comes into being. For this reason the life-principle is said to be generated *per accidens;* that is, not in itself directly, but *along with* something else, viz., the generated animal, of which it is an essential constituent part.

4. The sentient life-principle undergoes corruption per accidens. Just as it is *the animal* which is generated, and not the bare life-principle, so it is *the animal* which is corrupted or dies. The animal *itself* dies; the animal dies *per se*. The life-principle of the animal passes, with the death of the animal, from actual existence; it is corrupted or dies *per accidens*. At the risk of some inaccuracy we may put the statement thus: the animal itself dies, and this is corruption *per se;* the passing from actual existence of the animal life-principle is incidental to, or accidental to, the passing of the animal, and this is corruption *per accidens*.

5. The lower life-principles (plant soul and animal soul) are educed from the potentiality of matter, and are reduced to the potentiality of matter.

The *potentiality* of matter is the sum of possibilities latent in it. Now, matter *can* be alive; matter *can* be in-formed by a substantial life-principle. We know this is so because, as a fact, matter *is* alive in plants and animals; and what *is* alive *can be* alive. Thus we find that *to-be-alive* is within the range of possibilities realizable in matter. Not that matter can of itself

come to life, but matter, when actualized by a substantial life-principle *can be alive,* can be *living* matter, can be plant or animal. Matter, therefore, may be considered as *waiting* for the action of the substantial form which will actualize it as an organism. But we must not make this consideration too literal, for matter is pure potentiality and has no existence *of its own*. Keeping this clearly in mind (that matter itself has no actual existence in a formless state), we may use a very imperfect analogy, and say that the matter which is to become alive (when the substantial form is substantially joined with it) waits for its *substantial* form as the block of marble waits for the *accidental* form which is to make it a statue. And when a plant or animal is generated this waiting capacity, this *potentiality,* is actualized in fact, and a new organism exists. Now, in a sense, the life-principle which gives to matter actual existence as an organism, is *drawn out* or *educed* from matter, just as (allowance being made for the accidental character of the simile) the form of the statue is, so to speak, *drawn out* or *educed* from the marble block. The block of marble *can be* a statue, not, indeed, by its own power, for it has no power of its own *to become* a statue; it has only the capacity *to be made* a statue, and this capacity is actualized by the operation of a capable agency working upon the marble. And yet the accidental form of the statue is not something alien to the marble and *attached to it* from without; marble itself has the ca-

pacity for *having this form*, and the action of the sculptor causes this capacity *of the marble* to be realized in fact. And thus one is justified in saying that the accidental form of the statue is *drawn out* of the marble block, is *educed* from the marble. And if the statue displeases the sculptor; if he takes the hammer in hand and destroys the accidental form or shape which he has given the marble, so that not a feature of the image remains, the form of the statue is *reduced* or *thrown back* into the potential stage. The result of the sculptor's destructive action is what we call a "shapeless" block of marble. And yet this shapeless block can be formed into a statue again. The potentiality to be a statue is still there. The form of a statue has been *reduced* to the potentiality of the marble. Now, this simile is admittedly very defective indeed. The cautious student will, however, find it valuable for its *suggestion* of the educing of the substantial life-principle of an organism (that is, plant or brute animal) from the potentialities of matter, and the reducing thereto of the same substantial principle when the organism dies. For matter has the capacity for *existing as an organism* when a capable agency (generating or parent organisms) acts or operates to give it the substantial form of an organism. And when that form is given, it is not created by the parent organisms and attached to matter externally, nor is it produced by itself and afterwards fitted to matter; but the parent organisms, by their generative act, give

to matter a constitution which it is fitted connaturally to have; matter under the generative action is so constituted, so substantially formed, that it *lives*. And this is what we mean by saying that the life-principle of plants or brute animals is *educed* from the potentiality of matter. And when the organism dies, the substantial principle of life is not drawn off and kept in actual existence, to be deposited in some plant-heaven or animal-hell; no, the life-principle of the plant or animal ceases to have actual existence when the organism dies. It is not annihilated, but is reduced or thrown back to the potentiality of matter. For, while a dead plant or animal no longer has the substantial form of a living body, it still remains true that matter *can* have such a form.

It is important, in the present study, to reason most carefully, and to keep several important facts always in view. Such facts are the following: (*a*) The matter which enters with substantial form into the constitution of a body (living or lifeless) *does not have actual existence by itself*. There is no bare prime matter; there is no matter but in-formed matter; *formless* matter cannot actually exist for actual existence is a *form*. When matter takes new substantial form, it loses old substantial form. "The generation of one thing is the corruption of another." In this axiom, the term *generation* is not limited to the production of living things, but means the substantial production of any body, living or lifeless. Thus we speak of *generat-*

ing water from the gases called *hydrogen* and *oxygen*. These gases, combined in due proportion under action of a capable agency, produce *water;* water is *generated;* and at the same instant in which water comes into being, the gases pass out of actual being. The gases lose their respective substantial forms when the single substantial form of the chemical compound called *water* actualizes them. Thus when a new substantial form is actualized in bodies, it takes the place of an old substantial form, or of old substantial forms if the new body be substantially compounded of two or more elements. A new substantial form actualizes (generates) the new body, and the old substantial form or forms disappear (corrupt); and this all takes place *instantaneously;* and so "the generation of one bodily thing is the corruption of another." When a new substantial form comes in, it drives out the old. There is no *medium,* no middle ground, no "no man's land" between the two substantial forms. Therefore, we cannot view prime matter alone, for it does not exist alone. When a living body ceases to be alive, the substantial form (life-principle) is reduced to the potentiality of matter; but the body, the cadaver, is not formless matter. The dead body is still possessed of the outer shape (an *accidental* form) of the living body, and will retain it for a time; but the dead body is,—the instant the organism dies,—merely a parcel, in the shape of an organism, of various chemical elements and compounds, each of which has its proper substantial form as a lifeless substance. The substantial *unity* of the living body is conferred by the life-principle, and when the life-principle no longer actualizes the body, this substantial unity is instantly broken up and destroyed.

(*b*) The substantial form of an organism is its life-principle. But if this be a *material* form *it has no actual existence by itself*. There is no actually existing substantial form (if it be material, i. e., dependent on matter) except in actually existing bodies. Substantial form and prime matter must be substantially united, and *then* the actual body (essentially constituted of prime matter and substantial form) has actual existence. Remember that neither matter nor material form is *complete* either as *substance* or as *bodily being* in a definite essential kind.

(*c*) When a plant or animal is generated, this happens because the operating organism (or organisms, for there are usually two, male and female) produces a cell *of such constitution that it has life* in the same grade as the parent, yet *its own* life, which is not the life of the parent, but of the germinated cell as *a new living organism*. The *materials* of the new cell came indeed from the parent body or bodies, and these materials were not pure prime matter, but matter in-formed, matter with its own substantial character. The fecundation or germination of the matter

resulted in the fact that the matter took on a new substantial character; its old substantial form gave place to the new, and the new substantial form was a single substantial life-principle.

In all this, we have been discussing the production and the corruption of the *lower* life-principles, the *material* life-principles, which are the respective substantial forms of plant and animal. These principles, as we have explained, are educed from the potentiality of matter, and reduced thereto at the death of the organism. But there is another life-principle found in a living body which is not material, but spiritual. This is the human life-principle or *rational soul*, and we shall study it in the second Part of this manual. Here we merely mention an important fact: the human soul is not educed from the potentiality of matter (for, being spiritual, it is in no sense within the possibilities latent in matter) nor is it reduced thereto when a man dies. The human soul is, in each instance, produced by the direct creative act of Almighty God, and by the same act is simultaneously *infused* into the body, that is, is substantially united with the body, to actualize the single human substance. When a human being dies, his soul remains in actual existence apart from the body. For the human soul is spiritual, and, although it is united *in one human substance* with the body (and does not merely reside in the body like a prisoner in a cell), it is not dependent on matter for its existence or those operations which are peculiarly its own.

SUMMARY OF THE ARTICLE

In this Article we have studied the nature of the *sentient life-principle* or *animal soul*. We have seen that each animal has a life-principle, and that this principle is the substantial form of the animal's organic body. We have seen that this substantial form is the root-source of all the vital operations of the animal; that it is the *one and only* vital principle whereby the animal *lives, takes nourishment, grows, propagates, senses, appetizes, moves by local movement*. We have seen that the sentient life-principle, although it is *both vegetal and sentient*, is, nevertheless, a principle *essentially different* from, and *superior* to, the merely vegetal life-principle of a plant. Like the plant soul, the sentient life-principle is *material*, since it depends for being and operation upon matter, i. e., upon the organic body of which it is the first substantial act. We have seen that the sentient life-principle is *incomplete* both as a substance and as an animal. We have noticed the outstanding characteristics of the vital principle of an animal, and have found that it is simple, *actually one* (and only in the lower animals is it *potentially multiple*); that it is generated and corrupted *per acidens;* that (like the vegetal life-principle of a plant) it is *educed from the potentiality of matter*, and is *reduced thereto* when the animal dies.

CHAPTER IV

THE ORIGIN OF SPECIES

This Chapter discusses the wondrously harmonious yet varied groups of living bodies found in the world, and studies the gradation observable among them. It seeks to account for the order and apparent relationship existing among these organisms. It tries to explain the presence of organic types which were not found on the earth in an earlier period, and to discover the connection between these types and others which were once in existence but which have long since disappeared. The Chapter presents and studies various theories which have been advanced to explain the present state of organic life on the earth. These matters are discussed in two Articles:

Article 1. The Existence of Species
Article 2. The Problem of Species

Article 1. The Existence of Species

a) Meaning of *Species* b) Variety and Multiplicity of Species.

a) Meaning of *Species*

The term *species* is used in a wide variety of meanings. It has one meaning for the student of Logic, another for the person who studies the knowing process (as we shall presently do in the second Part of this manual), and still another for the laboratory

scientist. And in current daily speech the word *species* is almost synonymous with *sort* or *kind*. In the present study we employ the term *species* in the biological sense.

Species, in the biological sense, means a definitely marked group of living bodies. It means a class or group of living things (plants or animals—but we refer it here chiefly to animals) which is distinguished from other such groups by the *structure* of its members (their bodily "build") and their capacity for *interbreeding*. Many definitions of *species* have been formulated by biologists, and no one of them is entirely acceptable to all scientists. Professor Bateson offers us this sonorous definition: "A species is a class (of organisms) marked by morphological discontinuity and interspecific sterility." *Morphological discontinuity* indicates the fact that the body-structure of members of one species is unlike (or discontinuous with) that of members of another species: in a word, there is dissimilarity of "build" and bodily form between members of differing species. *Interspecific sterility* means that a female member of one species and a male member of another species cannot produce offspring. Professor Poulton formulates a very simple definition of *species;* he calls it, "An interbreeding community."

Whatever be the best definition of *species*, all agree that the most notable marks of such a class are two: *similarity of structure*, and,—apart from physical in-

capacity due to difference in size,—*the capacity for having offspring indefinitely in the natural or wild state*. The members of a species have bodies built on the same general plan, and, when left in their natural (or wild) state, the species tends to perpetuate itself, and not to die out.

Sometimes organisms of differing species may have offspring. Such offspring is called a *hybrid*. But the hybrid has no offspring, or, if it has,—and cases of the kind are extremely rare,—the offspring is not like the hybrid, but like one of the parents of the hybrid. Thus the offspring of a hybrid manifests what is called *reversion* or *reversion to type* (from the Latin *reversio* "a turning back").

Within the group called *species* there are minor groups called *varieties*. When varieties are artificially cultivated, they are called *breeds* or *races*. The offspring of parents of different races is called a *mongrel*. Now and then the descendants of a mongrel (perhaps after several generations) exhibit marked characteristics of one or other of the breeds in which the mongrel strain began. This sort of reversion or "throw back" is called *atavism*, a term derived from the Latin *atavus* "ancestor."

A species differs from every other species, as we have seen, in point of *structure* and *filiation* (from Latin *filiatio* "the having of offspring"). But many species may be grouped together on the basis of common characteristics more general than the specific determinants. Such a group of species is called a *genus*. And a genus grouped with other genera forms a *family*. And families of a type constitute an *order*. Orders are grouped into *classes*, and classes into *phyla*. The phylum is the most general class of organisms recognized by the biologist.

b) VARIETY AND MULTIPLICITY OF SPECIES

There is no need of argument or explanation to establish the fact that this earth of ours is inhabited by a bewildering number and variety of living bodies. Bird, and beast, and reptile, and fish, and insect, are types of organisms which we all know and recognize; and the earth is a veritable wonderland of varied plants. Even the least observant among us notices a great variety of types among animals and plants, and recognizes differences among the members of the same general type. The student who has had to study botany or biology, and has been put to the task of classifying the members of one *order* (such as the beetles), or of one *genus*, will be much more deeply impressed than the ordinary man by the variety and multiplicity of organisms, and by their amazing unity, harmony, arrangement, and gradation.

Geologists,—those scientists who study the strata of the earth-crust on which we live,—show us proof that the earth was not always the home of living bodies. The fossil remains of plants and animals furnish further proof that, when life appeared, or-

ganisms were not of the types with which we are now familiar. There are many species of living bodies now in existence which did not exist in earlier times, and many species that were once here have disappeared. Out of this fact emerges the scientific and philosophical problem which we are to discuss in the next Article.

SUMMARY OF THE ARTICLE

In this brief Article we have described *species;* we have offered several definitions of the term, and have noticed the two outstanding marks by which species are distinguished from one another, viz., *structure* and *filiation.* We have defined the terms *hybrid, mongrel, reversion, atavism.* We have listed the biological classification of living things from *species* back to *phyla.* We have indicated the great variety and multiplicity of species now existing and have called attention to the fact that the number of these is to be increased by the addition of extinct types of organisms.

Article 2. The Problem of Species

a) Terms of the Problem b) First Origin of Life
c) Origin of Species

a) TERMS OF THE PROBLEM

We find on earth the wondrous thing called life. We see life manifested in living bodies. We notice a

gradation, a scale of degrees, in living things, and we discern three *essentially different* grades of life and living bodies, viz., plants with vegetal life, animals with sentient life, and human beings with rational life. Further, we notice grades within the two lower essential grades; we find a graduated scale of types of organisms; these organisms are grouped into *species,* and each species appears to keep stubbornly within its own set limits, and yet the various species seem to be connected steps of one stupendous plan,—steps that lead from the least perfect sentient organism (if not from vegetal organisms) up to the higher animals, and even to man, considering man merely in his bodily structure and functions.

Now, out of the fact of life and its existing grades; out of the scale of specific types within the lower grades, comes the problem we are now to discuss. There is the preliminary problem of *life,* and there is the problem of *species* or of life in specific types of organisms. The preliminary problem must be solved before the other problem,—which is here our direct concern,—can be fairly attacked. We must discuss the *origin of life* on earth, before we attempt to understand the *origin of species.* And so we ask: how did life originate on earth, and how does it happen that living bodies are arranged in specific groups which seem to be related as the steps of a ladder or even the links of a chain?

b) FIRST ORIGIN OF LIFE

Scientists have long ago come to the conclusion that a living thing comes only from a living thing. True, there are a few who hold stubbornly to the utterly indefensible view of the Materialists that there is no essential difference between living and lifeless bodies; that life is to be explained in terms of physical, mechanical, and chemical activity; and that differences among existing organisms is merely a matter of the degree of complexity and intensity in such lifeless activity. We have seen that this view is not only unfounded but is flatly in conflict with reason and the facts of experience (Cf. *Chap. I, Art. 2, b*). Life is essentially different from non-life, and life does not come from non-life. The great majority of scientists are quite agreed on the point. They accept as axiomatic the phrases: *omne vivum ex vivo* "every living thing from a living thing"; *omne ovum ab ovo* "every egg,—or vitalized germ,—from an egg"; *omnis cellula ex cellula* "every cell from a cell"; *omne protoplasma ex protoplasmate* "all protoplasm from protoplasm."

We have all heard the famous question, "Which came first, the chicken or the egg?" It is an interesting question, but it is not a basic question. Granted that either the chicken or the egg had to come first in that particular chicken-and-egg series, the fundamental question is this: "Whence did the first chicken,—or first egg,—have life and the power to start this apparently unending chicken-and-egg series?" Mr. G. K. Chesterton, in one of his entertaining yet penetrating essays, says that it is more exciting to have a nose than to have a Norman nose. Similarly, it is more exciting, and vastly more important to the serious investigator, to find *life* than to find life in this or that organism. Tell us first where life came from, and we shall then take up the minor question of the various manifestations of life. We must face the problem of life,—i. e., of organic life on earth,—before we face the problem of species.

We have seen that life is *essentially* different from non-life. It follows at once that life cannot have originated in non-life. An effect must find explanation in its *adequate cause*, which will be one cause or a sum of contributing causes. True, a capable agent can use inferior materials to make a superior product, but in this case the *power of the agent* and the *agent's own perfection* which is back of the power, enter into the sum of causes which account for the product. We do not say that bricks make a wall, and exclude the builder and the planner of the wall. Mr. Dooley remarks in one of his more caustic moments: "It was discovered that ink and pa-aper wud projooce wurrds, and thin the printin'-press was invinted." We all catch and enjoy the point of the remark, but our very enjoyment comes partly from the absurdity of the notion that ink and paper of themselves, without thinker, and writer, and compositor,-and pressman,

could produce words. For nothing can of itself produce an effect which is superior to itself. Now, a living body is unquestionably superior to a non-living body. The living body has a constitution that is wondrously more complex, amazingly more balanced, and inexpressibly more unified than a non-living body. And the operations of a living body are of immeasurably greater variety and power than those of lifeless bodies. The living body is the superior thing, and the lifeless body the inferior. And hence the non-living body cannot of itself have produced the living body. An agent cannot give what he does not possess; he cannot do what is manifestly beyond his power to accomplish. You cannot pay a bill of one dollar with a single dime. You cannot lift the Pyramid of Cheops with three fingers. Neither can non-living matter give what it does not possess, i. e., *life;* nor can lifeless bodies do what is manifestly beyond their power to accomplish, i. e., *confer life* with its wondrous capacity for immanent operation. To say that life comes from non-life is to enunciate an absurdity; there is an obvious lack of essential proportion between life and non-life; viewed as cause and effect, with non-life in the role of cause, these items do not meet the requirements of reason or fact; they do not, as the schoolboy says, "add up right." If we find life in matter, as we manifestly do, there is only one possible conclusion that will satisfy reason, and this is that life was *put* into matter, and

has not come from matter itself. This conclusion of sound reason is backed by the whole history of experimental science.

A while ago it was the opinion of some scientists that the more imperfect animal organisms were generated by non-living bodies. It was found, for example, that water, completely sterilized and free from every form of life, would, in the course of a few hours, contain microscopic organisms. It seemed to the scientists in question that reason would have to surrender to stubborn fact and admit that life had come from non-life. Either that, or the old doctrine of a living universe (*hylozoism*) would have to be revived as the true philosophy of this bodily world. But the difficulty was only a seeming one. A few experiments, notably those of the great French chemist, Louis Pasteur (1822–1895), solved it completely and finally. These experiments showed that the organic life found in the water came there from the atmosphere, which is literally filled with tiny organisms or living germs. When the air was scientifically strained to prevent the infiltration of germs, the water was found to remain perfectly sterile. Further, it was discovered that when the water was left open to the air of the crowded city (with its hundreds of breathing beings, and its unavoidable accumulations of filth and decaying organic matter) it was soon filled with organisms, while water left exposed to the clear air of a mountain-top remained compara-

tively free from them. Thus was the death-blow administered to a theory called,—somewhat inaccurately,—*the theory of spontaneous generation*, that is, the theory that matter can, of itself, "come alive" or can germinate living bodies. We are all so familiar nowadays with processes of sterilization and pasteurization (which latter term is a perpetuation of the name of Pasteur) that we can hardly believe that, not very long ago, solemn scientists and serious philosophers found a baffling problem in the fact that exposed foodstuffs will "breed" maggots, and that the apparently solid apple has a wiggling worm in its heart. We know,—and accept the knowledge as a thing almost self-evident,—that infected foods take their infection from the germ-laden air, and that the worm in the apple was first a tiny egg deposited by a winged creature in the apple-blossom. And we prevent infection of foods by pasteurizing milk and by placing edibles into our refrigerators; we secure a crop of wormless apples by repeated and rightly timed spraying of our orchards. We know, in a word, that the organisms here considered come from other organisms; we know that life comes from life; we know that lifeless matter does not "breed" living things.

Now, even if matter *could* give life,—which it cannot do,—the basic question of the origin of life on earth would not be answered by this fact. For the question would at once revert to this: whence came

the original matter, and whence came its power to give life? It would not do to say that matter came from other matter which existed, perhaps, in the form of a primal mist or nebula. Such an answer would only delay the solving of the problem presented by matter as a source of life. Matter from matter, and this from other matter, and this from still other matter, and so on until the primal nebula is reached, and behold, this is still matter! The problem is not solved; the question is not answered. Not a single step, not the shortest distance, not an inch, not the breadth of a hair, has been traversed in any advance upon the problem. After considering all the long series of phases of matter, one has not yet even come to grips with the problem. The problem is precisely what it was at the outset; the question remains the same: where did the first matter come from and how did matter get the power to develop into living bodies? Now, it does not signify whether matter has undergone many changes or passed through many remarkable phases of existence. If matter is to be regarded as the source of life there must have been *a first quantity of matter* endowed with the power of producing a chain of material things which would eventually bud forth life. And our question is concerned with this *first* matter. The subsequent development of matter does not concern us at all until the fundamental question is answered, the question of where the original life-bearing matter came from and

where it got its cargo of transmissible life. The Materialists have always dodged this issue. They have not even had the grace of the politician in inventing some cloak or cover for their twisted and broken chain of ostensible reasoning. Some of them have explained life on earth by saying that it must have come from some other planet; which, as Mr. Chesterton points out, is like explaining the ghost in the village churchyard by saying that it must have come from a neighboring village. In a word, the explanation does not explain; it merely shifts the problem, leaving it completely unsolved and even unattacked. Other Materialists have dwelt, almost lovingly, upon the vast reaches of time during which matter has been developing, and they offer *that* as the explanation of life on earth; which is like explaining the character and personality of your guest by telling what a roundabout journey he made to reach your house. No; if matter is in any sense the source of life, it somehow and somewhere *got the power* to give life. That is the fact to be faced. That is the issue that cannot be ignored, for it is the issue upon which depends the whole philosophy of life in living bodies.

Matter, then, could not of itself have produced life. For matter, far from explaining the existence of living bodies, does not even explain its own existence. But there must be an explanation for everything. "Nothing exists," says the axiom, "without a sufficient reason for existing." Now, the sufficient

reason for an existing thing must be found in the thing itself, or in something else. If it exists in the thing itself, that thing is a being which *must* exist, a being of such character that it cannot be non-existent: otherwise, the being is not self-explanatory, but finds its explanation in something else, viz., in its causes. A being which explains itself, which is its own sufficient reason for existing, must be self-existent, must be uncaused. And such a being must, in the fullest sense, be self-sufficient. It must be boundless in perfection and absolutely infinite; for, not having to submit to the action of any causes (of things other than itself), there is no conceivable thing which could limit it or accidentally qualify it. In a word, a self-explanatory being must be infinite, eternal, all-perfect.

Now, there actually must be such a self-explanatory being. Why? Because all other things are inevitably traced back to it and require it as *their* ultimate explanation. For other things are explained in their producing causes; and these causes are explained by *their* causes, and so on. But there is an end to this; there is an end which is The Beginning. Things which do not explain themselves point inevitably back to something which does explain itself. To put the matter in a more technical way, *contingent* beings (beings which are dependent on, or contingent on, the action of their causes, and which would not be here if those causes did not operate) indicate infallibly the existence of a *necessary* being (a being

which is of such essence that it *must* exist; which is so limitlessly perfect that its very essence involves its existence and is identified with its existence). Contingent beings presuppose a necessary being. Caused beings presuppose an existing First Cause.

The necessary, uncaused Being which is the great source of all being, cannot be matter. And why? Because matter is not necessary, but contingent. Matter is manifestly subject to the action of causes; matter is changeable; matter can be shaped and moulded and formed and transformed. We see evidence for this statement all about us every day and hour. Material things, living and lifeless, come into existence and pass out of it; they are born and they die; they wax and they wane; they ripen, and rot, and decay, and disappear; they are in process of continuous change and movement. Now, if matter were a necessary thing; if matter were self-explanatory and self-existent; if matter *had to exist,* it would not be subject to the action of any causes, and would perforce be *changeless.* But matter is far from changeless; on the contrary, it is continually changed. If the ancient lush vegetation of the earth *had* to exist changelessly, how could it pass from its proper existence and become coal? If coal *had* to exist unchanged, how could it be transformed into ashes and smoke? If the baby *must* be what it is, unaffected by any causes, how does it presently become a man or

woman? Where there is change, there is *contingency,* for change is due to causes and is contingent upon their action. But the self-existent First Cause is not subject to causes; it is the *First* Cause; there exists no other cause which, from the beginning, could have had an influence upon it. The First Cause is *necessary,* and not *contingent.* Hence it is clear that matter, which is contingent, cannot be the necessary First Cause.

The First Cause which accounts for itself, for its own existence and that of all other things, must be *infinite* (for no cause exists to limit it), *eternal* (for time is the measure of creatural things that change), *all-perfect* (for it is subsistent being itself, boundlessly existing, purely actual and not potential). We call this one necessary Being by the name *God.* And if matter is in any sense the bearer of life, it is because God has made matter, and endowed it with the form of an organism and given it power to propagate. All life in organisms is, directly or indirectly, created life. And all created life comes, immediately or ultimately, from the Creator, God. It signifies nothing where you begin your investigation of life and its origin; it is of no consequence what preconceived notions you are pleased to entertain,—be they as materialistic as you will,—you *must,* if you keep open eyes and a clear mind, come at last to the conclusion, as inevitably as you come to the conclusion of a

rightly solved problem in mathematics, that life comes from the Author of Life; that life comes, in last analysis, from God.

Life does not come from non-life. Life comes from life. Ultimately, life comes from Life. Living bodies can be explained only by reasoning back to the Creator and First Cause of all, Himself uncaused, God the All-Living. This is the true, the inescapable first origin of life on earth. And notice carefully that this is not a postulate of faith or religion; this is a conclusion of cold, scientific reason.

b) ORIGIN OF SPECIES

Organic life has its first origin in the creative act of God. We must now ask about the different types of living things which have organic life. Did the Creator put life into only one or a few organisms and empower these to develop into all the types of organisms now existing? Or did the Creator make each and every specific type as we now know it? Or did the Creator make certain species and afterwards allow them to become extinct on earth and then replace them by other newly created species? These questions express the problem which is indicated in the phrase, "the origin of species."

All the theories propounded to explain the origin of species may be reduced to two: the theory of *changeless species,* and the theory of *transformed or derived species.* The last named theory is known as

transformism, although it is commonly called, by laymen and scientists alike, by its less accurate name of *evolutionism* or simply *evolution.* We shall make a brief study of these two types of theory.

1. *The Theory of Changeless Species*—Species are stable. *Of themselves,* they are changeless. One species has no inherent and connatural tendency to develop into another species; on the contrary, each species, while admitting varieties, clings stubbornly to its type and shows a fixed tendency to maintain it. God created the various changeless species, and this in one of three ways: (*a*) by successive independent creations; (*b*) by a single creation of all types of organisms (species) which implanted them, so to speak, in the world, each to appear at a suitable time; similarly, a gardener might sow at one time the seeds of many kinds of flowers, some of which would appear sooner, others later; (*c*) by creating a certain number of species, changeless *in themselves,* but specially endowed with a power, over and above their specific capacities, of developing into other species. We shall pause a moment upon these possibilities.

(*a*) God created the various types of organisms directly, each at the moment it appeared on earth. Certainly, this theory involves no self-contradiction. It proposes something entirely possible. And there is much to be said for it. It explains satisfactorily the

constancy of species, for, in spite of all the scientistic talk about one species being transformed into another, not one example of it has ever been found and verified. Species hold fast to their type, and when a departure from specific type seems to be begun, as in the birth of a hybrid, it stops at once; either the hybrid is without issue, or its offspring pops back into one of the parent species, utterly refusing to carry forward any evolution or to establish a change of specific type. Nay, even among varieties within a species, there is a tendency to hold the original natural types; and when artificial pressure is removed from a cultivated variety, the variety slips back into the state in which it formerly was. The theory of successive independent creations squares well enough with this constancy of fixed types or changeless species. The theory is an explanation that does explain. That it is the only explanation, or the true explanation, we dare not assert.

(*b*) St. Augustine, in his commentary on the Scriptural account of creation says, "In all the elements of the bodily world there are certain *seed-essences* which, when time and conditions are suitable, come to fruitfulness as species. . . . As a seed contains invisibly what will in time become a tree, and contains it from the first, so the world, which God created all at one time, must be regarded as containing from the first all that was created in it

and with it." This theory of *rationes seminales* (or *seed-essences*) would make the bodily world a kind of fertile field in which the Creator sowed, at the beginning, the seeds which would appear, each at its own time, as species of living things. This theory, like the foregoing, is a theory that does explain. It takes account of the stubborn constancy of species, and it recognizes,—what so many modern scientists are apt to overlook,—the fact that in the marvellously graduated scheme and scale of species there are real fixed differentiations as well as real resemblances; there are missing links by the million as well as nicely graduated organic types. It is truly strange that more modern scientists do not adopt a view somewhat akin to that of St. Augustine (who lived from 354 to 430) and see in the beautiful gradation of organisms, not an argument for evolution, but the manifestation of one Builder's magnificent and orderly plan.

(*c*) Some scientists feel that the theory of successive independent creations does not meet the requirements of the boundless wisdom of the Creator. How, they ask, could the all-wise God have made species simply to destroy them? No, they say, the first things He made served Him in the forming of those that came later. He modified the earlier organisms bit by bit, and with wondrous skill, to build up the variety of specific forms which have appeared in the successive geological stages of the world's development. In

other words, while species have no connatural tendency to transform *themselves* into different species (and this self-destructive tendency is nowhere observed in the universe), the Creator has imparted to species a special power so to develop; more accurately, He has successively intervened directly, not to create new species, but to make essential modifications in the old. Here again, we have a theory which explains the origin of species in a manner entirely possible. It does, however, seem a bit unfair to say that the theory of successive new creations is in conflict with divine wisdom. Might it not be that the extinct species served their turn and their time, and were of benefit to the rounded well-being of the world while they were here, and that afterwards they were allowed to disappear? And would their existence and disappearance then be in conflict with the divine wisdom? It seems not.

2. The Theory of Transformed or Derived Species—This theory, is, as we have said, called the theory of *evolution;* sometimes it is called the theory of *descent* or *derivation,* since it holds that one species is descended from, or is derived from, other species. There are several types of evolution, chief of which are the following: (*a*) Monistic Evolution; (*b*) Darwinian Evolution; (*c*) Christian Evolution.

(*a*) *Monistic Evolution*—The name of this type of evolution is derived from the Greek word *monos*

"alone; only." The theory holds that there is *only one* kind of substance in the universe, and that all things, living and lifeless, are made of it. Monism, in the very words of its founder, Ernst Haeckel (1834–1919), "conceives all nature as *a single whole,* and recognizes the existence of mechanical causes only." In other words, the world and all things in it are composed of a single sort of substance, which, since the world is bodily, must be a *material* substance, although Haeckel expressly denies that a spiritual *element* is excluded from the common world-stuff. Things differ by reason of the action of mechanical causes working on the world-stuff, and mechanical causes are those that produce local motion; thus things differ only by the direction and intensity of the movement of their atomic parts, and also, perhaps, by the number and arrangement of such parts in so far as number and arrangement could be the effect of mechanical causes. The world, originally a whirling mass of atoms of the world-stuff, has, through its mechanical activity, *worked itself out* or has *evolved* itself into its present state of order and regularity.

We cannot accept Haeckelian monism as a satisfactory explanation of the origin of species. *First of all,* it proposes a material substance as the self-existing, self-explanatory First Cause; we have seen that this cannot be. Matter (even though mingled with some spiritual element) is not necessary being,

but contingent being. It cannot be the *first* being. Haeckelism therefore is a theory which does not account for the facts it is meant to explain; it does not say where the world-stuff came from; it leaves us to accept, as a basic principle, the absurdity of unproduced matter. *Secondly,* this type of monism leaves us to suppose that the orderly universe came to its present state and condition by pure chance. No one who observes the great cosmic movements or who looks at the delicate order and balance of the tiniest organism can accept such a suggestion for a moment. Throw a handful of type on the ground and expect it to print a perfect sonnet in the dust; toss a pinch of finely ground iron-ore into the air and wait for it to form itself into a perfectly constructed chronometer; plant a bit of stone and look for the growth of a majestic building,—do these absurd things if you will, but refrain from that absolute nadir of insanity which looks upon world and life and murmurs "Chance!" Chance is never a cause; chance is indicative of something unexpected or unforeseen in an *effect.* The type-slugs cast on the ground might chance to print a sonnet, but the sonnet has still its *cause* in the type-slugs and the thrower. The thrown dust may form itself into a watch, and this effect may be regarded as a chance effect, but there was no chance about the cause; the dust had to be thrown, there had to be someone to throw it. *Thirdly,* Haeckel's monism proposes uncaused mechanical motion

as the basic actuality of things. Yet mechanical motion is not, and cannot be, self-originating. Mechanical motion is transient motion, and not immanent activity; and even if it were immanent activity, which it is not, it would, as we have seen, have to be infinite, and therefore subsistently independent of the finite universe which it actuates, in order to qualify as the ultimate reason and explanation of the world. Yet Haeckel explains the universe as the product of mechanical causes working within its own limits and existing only there. *Fourthly,* the monism of Haeckel recognizes no essential difference between life and non-life, and assumes the absurdity that matter can produce life which matter itself does not possess. But we have seen that there is a demonstrable essential difference between life and non-life; we have also noticed a simple requirement of reason in the principle that an effect cannot exceed the sum of its causes, and has nothing which the causes did not first possess and then bestow upon it. *Fifthly,* Haeckelism supposes that organisms, having come alive through the mechanical motion of the world-substance, can change themselves, and do change themselves, into organisms essentially different from themselves and of a higher grade. This doctrine is in manifest conflict with both the principle of causality and the principle of sufficient reason. Besides, the theory ignores the constancy of species, and leaves unexplained their stubborn tendency to hold their proper nature and not to destroy

it even for the sake of having it transformed into something superior. Such a suicidal tendency as the Haeckelian theory attributes to organisms is nowhere found in the universe. Organisms do tend to develop to the perfect and mature form of their own type; they never tend to lose their identity and become something specifically new and different. Nor may it be objected that Haeckel denied the essential difference of species; we admit that he did, but we are not discussing his opinion on the point; we are dealing with objective fact in the light of his doctrine of monistic evolution. *Sixthly,* the doctrine of Haeckel would make human life in all its manifestations a matter of mere mechanical motion. Thought, ideals, reasoning, willing, virtue, civilization, culture, and every phase of human action and achievement would be expressions or effects of such activity as one observes in water running down hill or in a kite that floats aloft on the summer wind. All the products of men's minds, all the science, all the philosophy, all the poetry, all the art, would be the product of mechanical action,—of action like the turning of a wheel, of action no whit different from that which is observed in the ticking watch or the throbbing motor. The patriot's devotion, the mother's self-sacrifice, the child's trusting love, the student's interest and tireless effort, the honest man's earnest practice of religion, the statesman's careful planning, the humble laborer's submission to endless fatigue in the work of earning

bread for his family,—all these would be manifestations of activity like that which sends the waves upon the beach or drives the raindrops down upon the earth.—For all these reasons we reject monistic evolution as the explanation of life and the origin of species. We find the theory utterly inadequate, utterly contradictory of reason, of fact, and of its own postulates.

(*b*) *Darwinian Evolution*—Charles Robert Darwin (1809–1882), an English naturalist, taught that all species of animals,—including man,—have come from one or two types of the lowest form of sentient organisms. The original parent-types tended to change and vary (as animals still do); the variations were transmitted to offspring, and these, in their turn, tended to add their own variations. So races were multiplied, and the changes eventually carried the varying races across the line of their specific nature, and new species appeared. The species that have endured and have held their place as lasting stages in the evolutionary process, are those which were found best qualified to meet the strain of the struggle for existence; other species, unequal to the struggle, have died out and become extinct. We may notice the struggle for existence, and the survival of the qualified, even in the individual animals of a litter, or in groups of animals that prey upon one another. The stronger manage to live; the weak and incompetent

perish. In a word, the history of species, as of individual animals and groups of animals, manifests a *struggle for existence* and *the survival of the fittest.* Now, the survival of the fittest is a *natural* process inasmuch as nature has equipped the survivors with those individual or specific superiorities (variations) which brought them victory, and hence the survivors may rightly be said to be *selected* by nature to endure. Existing species, therefore, are the conquering heroes of the struggle, and victory came to them by way of *natural selection.* Man is developed, by force of natural selection, from the higher apes.

We cannot accept Darwinian evolution as the explanation of the origin of species. We find it in contradiction with reason and with experience.

(*i*) Darwinian evolution contradicts *reason.* It makes *natural selection* the motive power which differentiates species, and natural selection is nothing more nor less than *chance* selection. In other words, Darwin, like Haeckel, proposes a universe of organisms evolved by chance. Reason cannot accept chance as a cause, for it is never a cause; chance presupposes a cause, for chance is only a quality in an effect; it is not the producer of an effect. Again, Darwinian evolution contradicts reason in assigning tremendous effects to trifling causes, after giving the causes existence by mere chance. To say that racial variations, when long sustained and amplified through generations of animals, will avail at last to change the very

nature of the animals concerned and turn them into new species of organisms, is as fatuous as saying that if a man wears brighter and brighter clothing, and instills into his children a love for more and more colorful attire, one of his descendants may eventually become a rainbow. Indeed, it is as silly as to say that the rainbow may eventually become a brightly clothed child; for the evolutionary drive (by force of pure chance or, if you prefer the synonym, by natural selection) is ever upward, from the lower type of being towards the higher. Reason demands a *proportion* between an effect and its adequate cause,—that is, the sum-total of causes which contributed to its being. Reason requires a measure and balance in things. Reason cannot conceive of a cause which confers what it does not possess, and of an effect which exceeds in perfection the total perfection of all the causes which contributed to its production. Darwinian evolution ignores this requirement of sane reason. The theory, therefore, is in conflict with reason; it *contradicts* reason; it must, in consequence, be rejected. Now, it will not do to say that Darwinian evolution is a development like that of a seed or germinated cell into the mature organism. The evolution of the seed or cell is not the evolution of one species into another by force of *accidental* variation which unaccountably becomes, on a sudden, *essential* variation. The evolution of the seed or cell is the growing-up of a specific organism to full stature.

Specific life, and specific drive for development, were present in the cell from the first, and the species of the seed or cell and of the mature organism which develops from it is one and the same species. Nothing is left for natural selection in the development of the germinated cell; the type of organism to be evolved is already predetermined.

(*ii*) Darwinian evolution is in conflict with *experience*. This type of evolution conceives species as ever varying, ever reaching out by countless variations towards the borderland of higher species. In consequence, species are not clearly defined. But modern experimental science presents us with litanies of species perfectly defined and clearly differentiated. The clear-cut character and stability of species is the very foundation of botanical and biological science. Again, the best of scientists freely confess that all the efforts of experimenters, gardeners, breeders, biologists, have not succeeded in driving an organism out of its species into another of either higher or lower type. Varieties are produced in almost countless numbers; a new species, never. Finally, the attempt to "cross" species directly by interbreeding (the process is called *hybridization*) has always failed to produce a new species. The hybrid is usually sterile, and when fertile, its offspring or descendants invariably revert to the species originally crossed. Thus is Darwinian evolution found to be in conflict with experience. For these reasons, therefore,—viz., that the theory contradicts reason and is in conflict with experience,—we reject Darwinian evolution as inadequate. We do not find in this theory an explanation of the origin of species.

Before passing on to consider *Christian Evolution*, we pause momentarily to inspect the *Theory of Mutations* proposed by the famous Dutch botanist, Hugo de Vries (1848–). This theory explains the origin of species by asserting the occurrence of sudden "jumps" in the evolutionary process. It does not admit the steady variations and gradual adaptations and overlappings which link up all species of animals in the Darwinian scheme. It asserts a series of sudden changes or mutations each of which introduced new species. In criticism of this theory, we may only say that if it attributes the "jumping power" to organisms themselves, without the intervention of an extrinsic controlling force (which is, ultimately, divinely applied), it fails by the same reasons which condemn Darwinism. If it means that God directly intervenes to produce the mutations, the theory is not essentially different from the third type of theory which supposes species to remain naturally changeless (Cf. *supra p. 137, c*).

(*c*) *Christian Evolution*—There exists to-day a mistaken attitude of mind on the subject of evolution, —an attitude so common as to be almost universal,

even among students and professors of the natural sciences,—which should be firmly and uncompromisingly corrected wherever it is encountered. It consists in the notion that evolution and religion are subjects inevitably, and even inextricably, intertwined. In many minds the notion is extended to include the conviction that an evolutionist is a man without belief in God. Now, the fact is that evolution, taken simply as a hypothesis, has nothing whatever to do with religion, nor has religion anything to do with evolution. It is a further fact that many professed evolutionists have been,—as many now are,—men of markedly religious life and abounding faith. Evolution cannot dispense with God, and even the monistic scheme ignores God rather than denies Him. For the rest, the universe is God's; if He choose to create it and have it go through a slow process of development and growth rather than to create it in full and complete and final form, it is still a creature-world and God is still its Creator. As a fact, we know that this earth of ours has gone through a long progress involving many changes. There was a time when life did not, and could not, exist on the earth. There was a later time when organisms existed in species which are now no longer found. There are now in existence organic bodies of species which were unknown in an earlier time. And, for the matter of that, Holy Scripture itself tells us that there was a process and a progress in the creation of the world; God created

all things in six periods or stages, which, we may well believe, were of immensely protracted duration, since geology seems to indicate as much, and there is nothing whatever in Revelation to suggest an idea of their length. Taken simply as an *hypothesis,* that is, as a provisional explanation assumed to be tested and tried in an effort to get at the truth of the world's history, evolution is a subject of purely scientific character and does not touch religion at all. In our rejection of *monistic evolution* and *Darwinian evolution* we have not invoked religion. We have found these systems in conflict with reason, with facts, and with experience, and so we have been compelled to reject them as inadequate and untrue. We have thrown aside these faulty theories, not because they are irreligious (as, indeed, in their practical effects upon human life they would undoubtedly be), but because they are utterly unreasonable and therefore manifestly false. *But there is one point upon which many evolutionists bring their hypothesis into conflict with religion, and it is the evolutionists themselves that cause the conflict, like a mad motorist who deliberately swerves his car out of line and drives it full tilt into another. The point is this: these mistaken evolutionists unwarrantedly teach that man, body and soul, with all his elements, faculties, and powers, is a pure product of animal evolution.* This doctrine no Christian can accept; nay, no sane man can accept it, for reason recognizes the fact that the chasm between animal life in

brutes and rational life in men is unbridgeable by any organic development, no matter to what lengths of complexity and refinement that development may be carried. For man's rational life is not organic at all, and therefore cannot find its origin or explanation in organic development. Man's rational life, as its operations testify (and operations indicate nature; function follows essence) is *supra-organic;* it is *spiritual* in character. This is a point we shall study in detail in another part of this book. The Christian, therefore, must reject any theory of evolution which brings man, body and soul, into the scheme of organic development. Notice, however, that the Christian is not compelled to make the rejection by religion alone; he makes it also on the authority of reason which finds the theory wholly unacceptable. In a word, the Christian rejects human evolution not only because he is a Christian, but because he is a man; not only because he has faith, but because he has a mind which can tell a hawk from a handsaw. *Man is simply outside any evolutionary theory or scheme.* This being once admitted, the Christian may (since Christianity is utterly reasonable and is the fostering mother and guide of right reason) accept evolution as the explanation of the world and of the origin of species, *if he finds the evidence satisfactory.* We have seen that the evidence is not satisfactory (for Christian or non-Christian) in the case of the two special theories of evolution called respectively *monistic* and

Darwinian evolution. Any evolutionary scheme, to be acceptable to reason, must recognize the following facts: (*i*) Matter is not self-existent nor self-explanatory. Matter requires a producer, and, ultimately, a Creator. For matter is contingent, and the existence of a contingent being demands, as its explanation and sufficient reason, the existence of a necessary being, an infinite being, God. (*ii*) Matter is not, of itself, immanently active; matter is not, of itself, *alive.* If matter have life, as it has in organisms, its capacity for vital functions was conferred upon it, was put into it,—ultimately, by the Creator,—and is not to be explained in mechanical or physico-chemical terms. (*iii*) If organisms have really the power to transform themselves into *other,* and specifically *superior,* organisms, this power must have been conferred upon them by the Creator who wills to have organic life so manifested and so developed; but, *of themselves,* and without specially conferred power, organisms cannot tend to become things essentially different than they are in their own mature and rounded constitution. (*iv*) Man is outside the field of any evolutionary development in nature, and the human soul is, in each individual instance, created immediately and directly by Almighty God.

Once all these requirements of reason (as well as of religion) are met, the Christian may, without let or hindrance from his faith, accept an evolutionary doctrine as the origin of species.

Let us now round out our position on this subject of evolution by a series of questions and answers:

Is it possible for a Christian to accept evolution as the explanation of the origin of species, if man is excluded from the evolutionary scheme?—Yes.

Is not evolution already utterly condemned in the condemnation of the Haeckelian and Darwinian systems?—No; *two special theories on the manner in which evolution is supposed to carry on* have been rejected; evolution as a possible *fact* has not been denied.

Is evolution, excluding man, really a fact?—It has not been proved so, even for the lowest of organisms. It seems probable enough. It may well be a fact. Again, it may not. We await further evidence for one conclusion or the other.

Are not all scientists avowed champions of the evolutionary theory or hypothesis?—No, but many are. Yet it is not the function of a scientist to champion any cause or to promote any enthusiasm; his work is to discover the *facts* in the field which he investigates. What any scientist *believes* is of small importance for science; true science, as Ruskin says, "does not speak until it *knows*," and can establish knowledge by inescapable proof.

Is not one out of tune with the scientific mood and trend if one withholds full assent to the evolutionary idea?—The *scientistic* mood, yes. There is no *scientific* mood. *Science* is not a matter of moods and

trends, of styles and fashions; *scientism* is. And even in many seats of learning *scientism* holds, by usurpation, the place which belongs to *science*. Scientism is incompetence, insincerity, or chicanery, wearing the mask of science.

Do not many people,—even learned people,—believe that the Catholic Church is the bitter foe of any evolutionary doctrine, and are not these persons therefore convinced that the Church stands opposed to science?—Yes. And many persons believe that the earth is flat. And some persons believe that a Catholic pays to have his sins forgiven. If people will not face facts, if people will not read history, if people will insist upon explaining what they do not begin to know, what shall be done about it? The fact that some persons of this stamp are regarded as "learned" and can show university degrees, is only an additional cause for tears—and the tears are not shed for the Catholic Church, the mother and promoter of true science. Fatuity, and mental vacuity, and charlatanism, are, like poverty, always with us, nor are the "learned" free from these lamentable ills.

Could a Christian hold the theory that man's *body* has an animal origin, that is, that the body of one single individual animal was developed through organic stages, after being first formed from the slime of the earth, until it was adequately prepared for God's purpose of infusing a human soul into it, and so creating our first father, Adam?—There is ab-

solutely no evidence for this belief. On the other hand, the notion *in itself* does not appear to conflict with reason or with the revealed account of man's creation.

Could a Christian accept the theory that many, or at least several, animals were thus prepared for elevation to the human status by the creation and infusion of souls?—Absolutely no. The best scientific study as well as clearly revealed truth combine to inform us that mankind is descended from *a single pair* of parents, and we have it as a truth divinely revealed that the body of the first woman was formed from the body of the first man.

When all demands of reason are met in elaborating a scheme of evolution, excluding man, what has religion to say for or against the possibility or probability of such a scheme as the statement of fact?—Nothing whatever.

What has philosophy to say of such a scheme?—Nothing whatever.

SUMMARY OF THE ARTICLE

In this lengthy Article we have learned many important things. We have stated the problem of the *origin of life* on earth, and that of the *origin of species*. We have found that the first origin of life is the creative act of an infinite and necessary First Being and First Cause, God. We have seen that matter does not explain its existence, nor can it explain the fact that material bodies possess organic life. *Spontaneous generation* we have found inadequate to explain the origin of life, and indeed we have seen that it is impossible. We have reduced to two general classes the systems which attempt to explain the origin of species: *the theory of changeless species*, and *the theory of transformed or derived species*. Under the first head, we have discussed the theories of *independent successive creations*, of *seed-essences*, of *essences changed by a specially communicated power for specific modification*. Under the second head, we have grouped the evolutionary theories, and have discovered that Haeckelian evolution (or *monistic evolution*) and Darwinian evolution (or the *evolution of natural selection*) fail to square with reason, with facts, with experience, and are therefore to be rejected as false doctrine. We have explained *Christian evolution* and have admitted its possibility, although we are forced to acknowledge that it is an unproved hypothesis.

PART SECOND

MAJOR PSYCHOLOGY

This Part of our manual is devoted to the study of the life, the nature, and the destiny of man. It studies the human life-principle or rational soul; it discusses the nature of the soul, its union with the human body, its powers or faculties which are the immediate principles of human operations.

These matters are studied in the following Chapters:

Chapter I. Human Life
Chapter II. Human Sentiency
Chapter III. The Intellect
Chapter IV. The Will

CHAPTER I

HUMAN LIFE

This Chapter studies the nature of the human life-principle or soul, and discusses the union of soul and body which constitutes man. The Chapter is accordingly divided into two Articles, as follows:

Article 1. The Principle of Human Life
Article 2. The Union of Soul and Body in Man

Article 1. The Principle of Human Life

a) The Human Soul b) Nature of the Human Soul
c) Origin of the Human Soul

a) The Human Soul

We have already learned that every living body, every *organism*, has, in its essential constitution, an element or constituent part, by virtue of which the organism *is alive*. We have also learned that this *life-principle* is not the material of which the organism is composed, nor is it some special arrangement of that material; neither is it some combination of physical, mechanical, and chemical forces which manifest their interplay in the organism. The life-principle is *something over;* it is something over and above the body-mass, the body-structure, and the body as a field for

the play of lifeless energies. And it is a *substantial* something, not an accidental of the living body. Nay, it is the *substantial form* of the living body; the form which constitutes the organism as an actual body, a living body, and a living body of one specific type. The life-principle is the "first act of the physical organic body." It is the root-source of all the actualness, and all the actual power and operation, which the organism possesses. It is called the *soul* of the organism.

Now, *man,* that is to say *a human being,* is an organism or living body. Therefore man has a life-principle which is in him a basic constituent part; which is the substantial form of the living human body; which is the root-source of all that is actual about the human organism; which is "the first act of the human organic body." This life-principle is called *the human soul.*

We have already adverted to the fact that the ancient term *soul* is seldom used nowadays as a simple equivalent or synonym for *life-principle.* Modern scientists and philosophers do not, as a rule, speak of the *soul* of plant or brute animal. We, however, have done so, following a very old and honorable usage. But we are aware of the fact that the unqualified term *soul* is almost universally understood (among those who use the term at all) to indicate the spiritual, immortal life-principle of man. When, therefore, we speak, in the present study, of *the soul,* we mean the

human soul; the principle of human life; the substantial form of the living human body.

b) NATURE OF THE HUMAN SOUL

The life-principle of a plant is called a *vegetal* soul; that of a brute animal is called a *sentient,* or an *animal* soul. Man's soul is called a *rational* soul because it is the basic principle of all man's vital operations, the most important of which are the rational operations, that is to say, the distinctively *human* operations of understanding and willing. *The rational soul* is merely another name for *the human soul;* we use the terms interchangeably.

Man's rational soul is, like every life-principle, the substantial form of the organism which it vivifies. It is a *substantial* form; it is a *substance.* It is, like all substantial forms, *simple* or uncomposed. It is rational, and therefore *spiritual.* Being spiritual, it is *immortal.* In a word, the human soul is a simple, spiritual, immortal substance. We have need to pause upon each point of this description.

1. The human soul is a substance. Speaking with approximate exactness, we may say that all reality is divided into two great classes: *substances* and *accidentals.* The term *accident* is usually employed by philosophers instead of the noun *accidental.* Realities, then, are *substances* and *accidents.* And a *reality*

is anything that can be thought of as positively existing. Anything actual or positively possible is a *reality*. No creatural reality can exist or even be thought of as existing except (omitting other fine philosophical classifications which do not concern us here) as *a substance* or as *an accident*.

A *substance* is a reality which is fitted to exist *itself*. It does not exist *of* itself. It has its producing and constituting causes; ultimately, it has its Creator and Preserver. And, taking the term *substance* strictly, it *always* has its causes, for the Divine Being does not come under the full classification of *substance* inasmuch as this involves limitations and imperfections and God is all-perfect. But, to revert to our point, a substance exists *itself*. It does not exist as the mere mark, qualification, modification, or limitation *of something else. An accident,* on the other hand, is fitted to exist as the mark, qualification, modification, or limitation of something else; and this *something else* is, proximately or remotely, a substance. A block of marble is a bodily substance. An angel is a spiritual substance. A human soul, as we shall see, is a spiritual substance. A man is a bodily substance,—even though his soul is spiritual, the compound or composite of body and soul is the bodily human organism.

A block of marble is a substance. It exists *itself*. The size of the block of marble, its shape, its color, its roughness or smoothness, its hardness, its temperature, its location, its state of being at rest or moved about—all these are *accidents*. They are accidents of the block of marble. They mark and qualify and modify and limit the marble. They are said to *inhere* in the marble, that is, in the substance which they qualify. And the substance gives them actuality. For if you think of the marble as utterly destroyed, where are its shape, its size, its weight, and all the other accidents? The substance *supports* the accidents in being; it *stands under* them, so to speak. And, indeed, that is why it is called *substance,* for this term comes from the Latin *sub* "under," and *stare* "to stand." And right here we discern the reason for the statement made above that God is, strictly speaking, not to be called *substance;* for the Divine Being is not qualified by accidents; It *stands under* no accidental modifications or limitations; for It is all-perfect and unlimited. But inasmuch as substance is conceived as that which exists *itself,*—leaving out the note of its supporting of accidents,—God is the Supreme and Perfect Substance.

We have said that accidents cannot exist (except by a miracle) if you take away the substance they qualify. Thus the size and weight and color of the marble block cannot exist *themselves,* that is, as size in the abstract, without being the size of anything; as weight taken alone without anything which can be weighed, and so on. But the marble can exist, and will, even if you take away its *present* weight and

color and size and all the other accidents. You can change the accidents by dividing the marble block, washing it, grinding it to smoothness, moving it, putting it into the sunlight or into an ice-chest. You change the accidents by such treatment, but you do not change the substance. Accidents may be changed without changing the substance in which they inhere; but if the substance is changed the accidents will regularly change too. Thus the accidents regularly *depend* on the substance. But the substance does not depend on the accidents. True, the substance will regularly have *some* accidents; but the point we make is that it need not have precisely the accidents that, at any moment, are found to qualify it. It does not, therefore, *depend* on its accidents.

Catholic students of this manual will understand our use of the word "regularly" in the foregoing sentences. For Catholics know of one case in which a substance is changed without a change in accidents, and of a substance which exists without any accidents to qualify it. In the Blessed Sacrament we have the true bodily substance of the living Christ (together with His Divinity) without its accidents. The accidents present are those of bread, not those of Christ. In the Consecration at Mass, the substance of bread and the substance of wine are changed into the substance of Christ, but the accidents of bread and of wine remain; and these accidents remain without *any* substance to support them, for they do not inhere

in the substance which is there, namely, the substance of Christ. This consideration does not, of course, properly belong in our present study; it is made merely for the sake of completeness, and to forestall a possible objection arising from misapprehension.

A substance is either *complete* or it is *incomplete*. Every substance is fitted to exist *itself*, but not every substance is fitted to exist *by* itself, i. e., to exist *alone*. The life-principle of a plant or animal is a substance. But without the organic body this substance cannot exist. It is incomplete. It is unable to exist *by itself*. It needs some other substance as co-principle. But notice: it is not an *accident* of that co-principle. The co-principles exist together; one does not inhere in the other after the manner of accidents. An accident exists *in* its substance; an incomplete substance exists *with* its co-substance. *A complete substance* is one that is fitted to exist by itself alone. Thus a plant or an animal is a complete substance. *An incomplete substance* requires another substance *with which it joins* in substantial union (and so constitutes a *complete* substance). Thus the life-principle of a plant or of an animal is an incomplete substance. Thus prime matter is an incomplete substance.

We shall presently see that the human soul is *a complete substance*. It is not a complete *man*, but it is a complete *soul*, and it can exist as a soul *by itself*. For it is *spiritual*, and not *material* (i. e., not dependent on matter for existence and operation) as plant

souls and animal souls are. We say, therefore, that the human soul is "complete in the order of substantiality, but incomplete in the order of species." In other words: the human soul is a complete substance (a spiritual substance) but it is not a complete man (does not, by itself, make the *species* "man"). But we have, first of all, to prove that the human soul is truly a substance.

Now, the human soul is that which constitutes the human being as a human being. It is that which substantially actualizes man, and makes him substantially different from every other sort of substance: from a lump of coal, a meadow flower, a brute animal. Between man and other substances there is a *substantial* difference. But that which constitutes a substance in its substantial reality and marks it off as substantially different from other things, is itself a *substance*. An *accident* is not competent to go above itself and its capacity, and establish a substance or mark a substantial difference. Therefore the human soul is truly a substance.

Further: the human soul is the root-principle of human operations. But operations, in creatures, are not identified with that which operates. The thinker is not the same as his thought; the growth of a body is not the body itself. Operations come from powers to operate, and these powers are rooted in the thing which *has* the powers and performs the operations. For operations as such are *accidents*, and accidents require a substance in which to inhere. Therefore, the human soul which is the first principle of human operations is substantial; it is *a substance*.

For the rest, the soul is the substantial form of the human body, and every substantial form is, at least incompletely, a substance.

2. *The human soul is a simple substance.* When we say that the human soul is *simple* we mean that it is not composed or compounded; we mean that it is not *essentially* compounded of matter and form (as every *bodily* substance is), and that it is not *integrally* composed of quantitative parts. The soul is a substance which precludes essential and integral composition.

First of all, the soul is *essentially* simple; it is not composed of matter and form. For the soul is the first principle of life, and we have seen that such a principle is not, and cannot be, *matter*. A living thing composed of matter and form is an *organism*, a *living body*, not a *soul*. The soul, therefore, is not composed of matter and form; it is solely a form. Hence it is essentially simple. This essential simplicity is not only a mark of the human soul; it is a mark of every life-principle, even that of plant or brute animal, and of every substantial form, even that of a lifeless body.

Further, the soul is *integrally* simple; it is not made up of quantitative parts. This follows from the foregoing. Quantitative parts are bodily or material, and

that which has no matter in its make-up has no quantitative parts. But the soul has no matter in its make-up; it is a form alone, not matter-and-form. Hence it is integrally simple. Again we must notice that integral simplicity is a property of every substantial form, even of such as are called *material* (in the sense that they *depend* on matter for existence and function) and of such as are *potentially multiple*.

We may leave dry reasoning on this matter and take evidence for the soul's simplicity from our own consciousness. We are conscious that we can *reflect*, that is, we can "bend back" the knowing act of the mind (which is a vital function, the principle of which is the soul) upon itself. We can know that we know; we can make the knowing act the thing known; we can study our own mental states and processes. Now, a thing made of parts could not possibly perform such an operation. Part might be bent back upon part, but the entirety could not be wholly bent back upon itself. This operation called *reflection* is, by the way, a proof of the spiritual nature of the soul as well as of its simplicity. But, for the present, we consider only the fact that the power of reflection is a certain proof of the absence of material or quantitative parts in the substance which reflects.

Since the soul is a *simple* substance it cannot be divided *per se*. But there are other simple substances, and hence substances indivisible *per se*, which are nevertheless divisible *per accidens*. Lifeless bodies are

divisible *per se;* for lifeless bodies are homogeneous in their structure; one part is like another, and when the parts are divided, each has the nature which the unbroken body had at the outset. A piece of limestone may be broken into many pieces, and each piece is limestone. Living bodies are not divisible *per se* into a plurality of living bodies. But plants and the lowest sentient organisms are so divisible *per accidens*. That is, *accidentally to* the division of the bodily parts in such a way that each part has enough of the organic (heterogeneous) structure to support life, the living creature is multiplied. Thus the rose-bush can be divided into a plurality of rose-bushes, and worms, rightly cut in two, can each become two worms. Such organisms are said to be divisible *per accidens*, and their respective life-principles are said to be *potentially multiple*. But with the higher types of animals and with man the case is otherwise. For here the organism is highly diversified and the organic structure is not complete enough in the different parts to make these capable of sustaining a full organic life like that of the undivided original organism. The higher organisms are, therefore, not divisible, either *per se* or *per accidens*, and, in consequence, their respective life-principles are not potentially multiple. As to man, we shall presently see that his soul is spiritual, and a spiritual substance is independent (for existence and proper function) of matter, and therefore is in no wise accidentally divisible according to

the divisibility of the material organism of which it is the substantial form.

The human soul is a substance essentially and integrally simple and absolutely indivisible.

3. The human soul is a spiritual substance. A spiritual substance is a substance which is intrinsically independent of matter for existence and operation. It may be (and in the case of the human soul it *is*) a substance designed to be the form of a material thing, and hence a co-principle with matter in constituting a *specific essence*, or simply a *species*. But *in itself* and for those operations which are *proper to itself as a spiritual substance*, it is always independent of matter. If the spiritual substance is, in itself, a rounded and complete specific nature, not designed for union with any other substance as co-principle, it is said to be a substance *complete in substantiality and in species*. Such a substance is, for example, an angel. But if a spiritual substance be made for substantial union with another substance,—so that the two, when united, constitute a compound but *single* complete essence or species,—it is said to be incomplete in species, or incomplete as a species. Such a substance is the human soul. For, taken alone, the soul is not the complete human essence; the soul is not the complete man; in order to constitute the complete human essence or species (the complete man) the soul must be substantially united with the body.

But the human soul, although it is incomplete as a species, is complete as a substance, or, to adopt a more usual phrasing, the soul is complete in point of substantiality, or *in the order of substantiality*. It is a complete spirit; it is a complete soul. And it has the operations proper to a spiritual substance of its kind. The human soul does not, therefore, require the body in order to exist and to perform those operations which are proper to it as a human soul, to wit, the operations of understanding and willing.

The vegetal soul in a plant and the sentient soul in an animal are *material* souls, and not *spiritual*. They are material inasmuch as they depend upon matter for their existence and operations. These vital principles have no operations proper to themselves considered independently of the organic bodies which, respectively, they vivify or vitalize. A vegetal or a sentient life-principle has no operation *of its very own* which it does not exercise by the instrumentality of a bodily organ. Such a life-principle is indeed the first principle of the vital operations performed *by the organism* which it actualizes and vivifies; but these operations are, without exception, organic operations; they are operations which cannot be discharged except in and by means of the body and its organs. And therefore we know that the vegetal and the sentient life-principles have no existence apart from their respective organisms. For if such a life-principle had existence, it would have activities; since *every* substance

has activities once it is constituted in actual existence. The vegetal and the sentient life-principle are therefore incomplete both in point of substantiality and in point of species; they cannot, without their respective organic bodies, exist as substances or as plant or animal. But the human soul is incomplete in point of species only; it is complete in point of substantiality. The human soul *can* (and when a man dies it *does*) exist independently of the human body, and in its separate existence it exercises its own proper operations of intellect and will. And this is so because the soul is *spiritual*, and not *material*.

How shall we prove that the human soul is spiritual? We shall see what the soul does; we shall notice its operations. Operations follow essence and indicate the nature of that essence. If the operations of the human soul are of a spiritual nature, they infallibly prove that the soul which operates is a spiritual substance. But how shall we come at the soul to observe its operations? We shall observe the operations of *man*, the substantial composite of body and soul. We shall study the human operations and discover whether these could all be exercised without a spiritual life-principle or, on the other hand, whether some of these operations require a spiritual principle as their sufficient explanation and reason. And what must our conclusion be? If we find that all man's vital operations are such as require a bodily organism for their exercise (as is the case with vegetal and sentient operations) we shall have no choice but to conclude that man's soul is *material* in the sense that it depends essentially on matter for its operations, and hence also for its being or existence. But if we find that some of man's operations are supra-organic, that is, are of such character as precludes the possibility of their being exercised by bodily parts or organs, we shall be forced to conclude that man's soul is independent of matter in these operations, and (since operation follows and indicates essence) independent of matter in its essence. But a substance which is essentially independent of matter is a *spiritual* substance. Therefore, if we find that some of man's operations are supra-organic or spiritual in character, we have proof incontestable that *the soul is spiritual*.

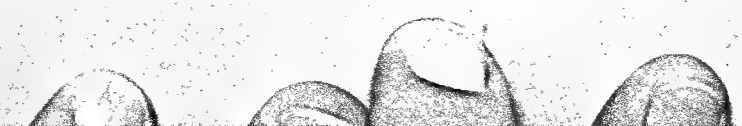
Now, as a matter of fact, man *has* operations which are independent of matter, which are supra-organic, which are of spiritual character. Therefore, he has a soul which,—since it is a *substantial* principle,—is *a spiritual substance*. We shall investigate some of the operations of man which prove our point.

A man can *think*, and *reason*, and *reflect*, and exercise *acts of the will*. These acts or operations are absolutely independent of time and place and concrete circumstances. But an organic operation is not independent of time, place, and concrete circumstances. Nutrition, for example, is an operation which involves definite individual materials worked upon, here and now, within the living body, and transformed

into the substance of the living body. So with growth and generation. So also with sensation: a thing seen is a definite, individual object, here and now brought into the range of sight; a thing heard is one definite concrete sound or concert of sounds here and now within the range of the hearing; and so with other sensations, and with appetition, and locomotion. But when a man *thinks,* he forms an *idea,* he grasps *an essence* in general or universal, and this is true even when he thinks of objects in the bodily world. A man can know, for instance, what a house is, or a hill, or a tree, or a horse; he can form *ideas* of these things, and thus know them in a manner that transcends all organic grasp. If a man looks at a house, he sees that particular house. But man's *idea of house* is not limited like the sense-perception (which is organic). Man, by reason of the idea *house,*—which his mind has formed by working upon the experiences brought to him by the senses,—can understand *what house means.* If someone speaks of a house, the man in question understands perfectly without having to see any particular house. His mind abstracts from (or neglects to consider) the things which make a house individual and concrete,—things like the style and size of the house, the materials of which it is built, its location, its time of building, etc.,—and holds only the things that make a house a house. The man understands *house in universal.* But the man cannot *see* house in universal; he must, to exercise the organic

operation of seeing, have within range of his eyes *the house in individual;* and he must see it in a certain *place* at the *time* of his seeing. Here we see that the organic operation is characterized and limited by individuality, space, time, circumstances in the concrete. But the operation of *thinking,* of forming and having the *idea,* and of *understanding* thereby, is not limited or characterized like the organic process. The operation of thinking, of intellectually knowing, is therefore not an organic operation; it is supra-organic; in other words, it is an operation of spiritual character. Therefore it proceeds from a spiritual first principle, which, like every first principle of acting or operating beings, is *substantial.* Hence the substantial first principle of the human operation of thinking (of intellectually knowing) is spiritual. But this substantial first principle is the human soul. Therefore, the human soul is *a spiritual substance.*

As with thinking, so with reasoning. To reason is to work a thing out by connected steps of study. One *reasons* in solving a problem in algebra, or in demonstrating a theorem in geometry. A student who has made a careful study of the preceding paragraph, has been *reasoning.* Now, obviously, there is no organ or bodily structure by means of which such an operation could be exercised. The finest faculties (i. e., powers for vital operation) that a man has, short of the intellectual faculties here in question, are the sentient faculties. But which of the sentient faculties is even



conceivably competent to study and compare and note relationships and draw conclusions? By what sentient faculty can you do a sum in mathematics. By what organ can you discover that two and two make four? You can see two bricks; you can hear two sounds; you can smell two odors; you can touch and feel two bodily objects; you can taste two flavors; you can imagine two dragons. But you cannot, by any sense or sense-organ, lay hold of *two*—that is, of *two* by itself; not two of this or that, but simply *two*. But the mind of man can understand what *two* means. A man, confronted with the exacting problem of adding two and two, does not pause and say, "Two *what?*" When little boys and girls first go to school the teacher trains them to make pure mathematical *concepts* (or *ideas*) by connecting the quantities with definite and sensible materials. The teacher says, "If John had two apples and Mary gave him two more apples, how many apples had John?" But in a very short time the minds of the smallest children are ready to dispense with the apples and with other material substances, and are able to deal with *quantity in the abstract*. And so the children add two and two, and three and five, and nine and seven, not being puzzled by the task of handling quantities *without any sensible thing that is quantified*. What organ could begin to do such a thing? The brain? You might as well say the eye or the ear. For no organ deals with objects in the abstract; no organ can deal with objects in universal.

The brain is the organ of the interior senses, of which we shall hear later in this treatise. The brain is the organ of imagination, for example, and sense-memory. Now imagination and sense-memory can deal with their object when it is no longer outwardly and physically present; but to do this they must project the object within themselves in an image that is *individual, concrete, circumstanced*. This is an example of the highest type of organic operation, and it is still a matter of concreteness and individuality and circumstance. But thinking and reasoning are not limited by concreteness, individuality, and circumstance. Hence thinking and reasoning are operations of a character superior to any organic operation. They are supra-organic; they are of spiritual character. Hence they come from a spiritual first principle. This is the soul. Therefore, *the soul is spiritual.*

Man's mind or intellect holds such ideas as *being, unity, goodness, truth, ideals, virtue, honor, ambition, purpose, beauty, steadfastness, patriotism, etc.* Can any organ lay hold of such things? Can you see truth? Can you smell ideals? Can you imagine what ambition would look like, and draw a picture of it? These are *abstract* things; they are things *drawn out* from concrete and individual limitations or settings (*abstract* comes from the Latin *ab* "from" and *traho* "I draw"), and hence they are beyond the grasp of any organic bodily part. They are things which require a supra-organic power to apprehend them, a *spiritual*

power. But this power is resident in a spiritual substance; this substance is the soul. Therefore *the soul is spiritual.*

The soul can *reflect.* The term is from the Latin *re-* "back," and *flecto* "I bend." The soul can *bend back* upon itself. It exercises this function by its faculty of mind or intellect. The mind can know itself knowing; can think of its thinking; can make itself and its processes the object of its own study. No organic faculty can do as much. The eye cannot see itself seeing, nor can the ear hear itself hearing. The sense of taste cannot taste itself. No organ nor organic faculty can *reflect.* An organ or bodily part may *bend back* part of itself upon another part, as the hand can bend fingers back upon the palm. But no bodily part can bend *all* of itself upon *all* of itself. The mind can. The mind (or intellect) is therefore supra-organic; it is a spiritual faculty. And, in consequence, it resides in *a spiritual substance.* Hence *the soul is spiritual.*

Further: every nature, every operating essence, tends towards that which suits it, which is good for it, which answers its connatural needs. Now the human soul tends towards spiritual things: justice, science, virtue, endless happiness. The human soul exercises this tendency by *rational appetition* or *will.* But there must be a proportion and balance between the appetition and the object appetized. A purely bodily thing has no need or tendency or connatural "desire"

for that which is of supra-bodily character. Only a spiritual faculty can exercise a spiritual drive or tendency. We must conclude that the human will is a spiritual faculty, and, since this is so, the soul, or substantial principle which exercises will, is *a spiritual substance.*

Let us close the present study with one additional consideration. The physiologists tell us that the material organic body is continuously being worn out and renewed, and in the course of a long lifetime a man's entire body-structure must have been completely replaced eight or ten times over. Yet the man of eighty will recount tales of his boyhood, his youth, his maturity. There is something substantial about the old gentleman which has *not* worn out, and has *not* been renewed, but has *endured unchanged* through all the long years. It is not the body; it is not something organic. It is something supra-organic or spiritual. It is *the spiritual soul,* which constitutes the "self" and holds this self unchanged through all the bodily changes of a lifetime.

The soul of man is a spiritual substance. Therefore we must reject as entirely untenable,—and as a theory which not only does not explain human operations but contradicts them,—the doctrine of the *materialists* who maintain that there is no such thing as a spiritual reality, and teach that *matter* is the single cause of all vital phenomena whether in the vegetal, sentient, or human order. Notable materialists of

more recent times were: John Tyndall (1820–1893); Herbert Spencer (1820–1903); Auguste Comte (1798–1857); Maximilien Paul Littré (1801–1881); John Stuart Mill (1806–1873); Karl Moleschott (1822–1894); Ludwig Buechner (1824–1898).

4. The human soul is an immortal substance. The term *immortal* is derived from the Latin negative prefix *in* (which here changes its *n* to the next following letter for sake of euphony) and *mors* (stem *mort-*) "death." Thus *immortal* literally means *deathless* or *undying*. When we say that the soul is *immortal* we mean that the soul is *a substance which does not, and cannot, die.*

There are degrees of immortality. (*i*) Perfect, unconditional, and essential immortality belongs to God alone. God is Infinite Life; God is necessary Being. God cannot be non-existent, nor can He be non-living. The immortality of God is called *absolute immortality.* (*ii*) The next (less perfect) grade of immortality belongs to created substances which are so constituted as to preclude the possibility of dissolution or death. Such are *simple* substances *that are complete in point of substantiality.* These substances have no parts and hence cannot be shattered into parts; further, these substances do not depend upon matter (which has parts) and cannot fade from existence when the matter is shattered into its constituent parts. In a word, such substances cannot die either *per se* or *per accidens.* And this is because they are *simple* and *spiritual* substances. Their immortality is called *natural immortality.* Of course, these spiritual substances are contingent and not necessary beings; they are creatures; they would not exist if the Creator did not call them into being. And, absolutely speaking, the power which made them could withdraw its sustaining influence and allow them to be *annihilated.* But, apart from the pure possibility of *annihilation* (which is *relatively* impossible, i. e., impossible because of, or in *relation to,* the infinite wisdom and goodness which would not create only utterly to destroy) these spiritual substances have no capacity for extinction, no possibility of dying. Such substances are angels and human souls. Therefore, when we say that the human soul is immortal, we mean that the soul is endowed with *natural* immortality. (*iii*) The lowest grade, so to speak, of immortality is that which is found in bodily things which, being bodily, could and would die, but which will not be allowed to die. The nature of such substances inclines them to dissolution, since they are made of parts, but by a divine gift *above* their nature, or *supernatural,* they are made immortal. Such were the bodies of our first parents. By their sin Adam and Eve lost the supernatural gift of bodily immortality, and they and all their descendants were doomed to die. The bodies of men, joined with their souls at resurrection, will thenceforth be dowered with this *supernatural* immortality.

We say that the human soul is *naturally immortal.* And we say so because the soul has not, either in itself *intrinsically,* or in other things *extrinsically,* anything that could make its death possible.

First of all, the human soul is *intrinsically* immortal. We have seen that the human soul is a spiritual substance which is the first principle of life in man. It is alive, and it is the source of human vital operations. Now, a spiritual living substance is complete *as a substance* and it is *simple.* These points are involved in the very essence of spiritual substance. But a simple substance cannot be dissolved into parts, for it has no parts. But death *per se* is the dissolution of a thing into its parts. Hence the soul cannot, *per se,* be corrupted, dissolved, or *die.* Nor does the human soul depend on that which has parts, namely, the organic body. We have seen that the soul has operations which are definitely and unquestionably supra-organic; and we have concluded perforce that the soul itself (since operation indicates essence) is supra-organic; it does not depend on organs for its existence or proper operations. But death *per accidens* is the passing of a substance from existence by reason of the dissolution of the material or organic body on which such a substance depends. The soul, however, does *not* depend on the body, and hence does not perish when the body is broken into its constituent parts. Hence the soul cannot die *per accidens.* Now, what cannot die *per se* or *per accidens* is *intrinsically immortal.* Therefore the soul is intrinsically immortal. But that which is intrinsically immortal is so either by *absolute* or by *natural* immortality. Absolute immortality belongs to God alone. Therefore the human soul has natural immortality; *the human soul is naturally immortal.*

In the second place, the human soul is *extrinsically* immortal. That is to say there is no cause outside the soul which *can* or *will* destroy it. A spiritual substance cannot be destroyed unless it is *annihilated,* that is, reduced to absolute nothingness. And annihilation can come only from the cause which can *create.* To create is to draw out of nothingness into actuality; to annihilate is to withdraw the sustaining creative power and allow the creature to disappear into nothingness once more. But only God can create, and, therefore, only God can withdraw the sustaining creative power. Hence, on the face of it, annihilation is possible; God *can* annihilate. But when we consider the infinite wisdom of God, and His infinite goodness, we are forced to conclude that to annihilate a spiritual substance would involve a contradiction in the all-perfect Being, and hence such annihilation is impossible. In other words, if we look at God's *power* alone, we say that God *can* annihilate. But when we consider the other divine perfections (which are not really *other* in God, for all are identified in the Divine Essence, and are seen as distinct only by reason of our limited capacity which cannot adequately take them

as they are and view them in infinite identity) we say that God *cannot* annihilate. For, manifestly, it would not be wise,—and God is infinite Wisdom,—to create a substance capable of endless existence only to negative its capacity and utterly destroy it. Nor would it be kind or good,—and God is infinite Goodness,—to implant in a spiritual soul a "longing after immortality," such as that to which all sane minds confess, and then render the desire futile by complete destruction of the soul. Therefore we say, in the language of the philosopher and theologian, "In His *absolute* power God can annihilate the soul; but by his *ordered* power (i. e., His power brought into alignment and *order* with the other divine perfections) He cannot annihilate it."

The argument just concluded is strictly rational; there is not a shred or scrap of sentiment about it. We pause a moment, in passing, to notice this fact, lest we win the unwanted approval of those mistaken sentimentalists who,—incapable of measuring the full stature of a man and recognizing the glorious dignity of human freedom and responsibility,—try to argue themselves out of belief in hell by saying, "How could an all-good or all-wise God condemn a soul to endless torments?" This sort of thing,—this unworthy whine,—is not on a par with our argument which finds the wisdom and goodness of God insurmountable obstacles in the way of a possible annihilation of the human soul. To put the matter simply and be done with it, it

suffices to notice one immense difference in the two arguments: if annihilation of the soul were possible, it would come from the power of God, man being helpless under the process of utter extinction; God would have all to do with it, man would have nothing to do with it. But in the eternal condemnation and torments of hell, man has everything to do with it, and God, strictly speaking, has nothing to do with it. On the contrary, God wills all to be saved, and the eternal loss of a soul is its own doing, in spite of all that God does for it to induce it to choose eternal happiness.

Summing up the arguments for the immortality of the soul, we say: the human soul is *intrinsically* immortal because it cannot die either *per se* or *per accidens;* it is *extrinsically* immortal because there is no cause outside the soul capable of annihilating it. Therefore, the human soul will not die at all. Its immortality is *natural* immortality, for its spiritual nature makes it capable of endless existence and excludes a connatural tendency to dissolution or extinction. Therefore, *the human soul is naturally immortal.*

c) ORIGIN OF THE HUMAN SOUL

The human soul can come into existence in only one way, namely, as the immediate product of a cause which produces it in its entirety out of nothing. In a word, the human soul can come into existence only by being directly *created*. Now, God alone can create.

Therefore, the human soul can come into existence only by the direct or immediate creation of God.

The human soul cannot be derived from the *souls* of parents. For we have seen that the human soul is a simple spiritual substance. Hence the souls of parents cannot be divided *per se* or *per accidens* to give off parts, germs, or elements, to form the soul of offspring. The fallacious doctrine, long abandoned by philosophers generally, that the soul of a child is derived from the soul of its parents, is known as *Traducianism,* from the Latin *trans-ducere* "to lead or draw out or across"; the name is meant to indicate the theory that the soul of human offspring is "drawn out or across" from the souls of the father and mother.

The human soul cannot be derived from the *bodies* of parents. The statement is self-evident. For the spiritual substance called the soul can have no origin in a mere material substance. Generation, as a vital process, produces a result that is *of like nature* with the source or generator; all that could possibly be generated out of a body is bodily in nature.

Now, if the human soul cannot come into existence by being generated by parents, it must come into existence by being, in each man, directly created by God. There is no other way in which it might originate.

Each human soul is, therefore, directly and immediately created by Almighty God. Now, the question arises: *when* is the human soul created? The human

soul is a substantial form, and no substantial form is produced until the conditions requiring it are present. Hence the human soul is not first produced and held ready for its body. This would be "pre-existence of souls," a doctrine theologically reprobated, and philosophically unsound. The soul does not exist until it exists as the substantial form of a human body. Therefore, the moment of the soul's creation is the moment of its substantial uniting with its body. The language usually employed to express this truth is this: the human soul is *created* and *infused* into the body at one and the same instant. The moment of a soul's *creation* is the moment of its *infusion,* i. e., its substantial uniting with the body.

Now, when does that instant of creation and infusion occur? Is it the *moment of conception,* that is, the moment when the male and female elements join to compose the primal cell of the offspring? Many Scholastic psychologists think so; in fact, this view may be called traditional, since it has met general favor for five or six centuries. St. Thomas Aquinas and many of the older Scholastics believed that the new life which emerges at the moment of conception within the body of a human mother is, for a time, plant-life, and later, when the new organism is developed to sufficient complexity, the plant soul or substantial form is displaced by a sentient or animal soul, and this, in turn, at a later stage of development, is displaced by the human soul which is *then* immedi-

ately created and infused by a single act of divine power. Thus, according to this view, the moment of the soul's creation occurs some weeks after conception. The arguments offered for each of these two conflicting doctrines are interesting and not without weight, but none of them is absolutely conclusive. In the light of authority on the subject, and also in view of the relative merits of argument on either side, it appears that the more probable doctrine is that which asserts *the moment of conception* as the moment of the soul's creation and infusion. But the point we make here is that, *whenever* the soul is created and infused, its creation and infusion are *absolutely simultaneous,* and come of a single direct act of divine power. The soul does not *pre-exist* to its body. The first moment that finds a human soul without its body is the moment it leaves the body when a man dies.

SUMMARY OF THE ARTICLE

In this Article we have described and defined the human soul as the first principle of life in man. We have made a detailed study and proof of the *substantiality, simplicity, spirituality,* and *immortality* of the soul. We have seen that the soul can come into existence only by way of *creation,* direct and immediate in each instance. We have discussed the moment of the soul's creation, and have found that the soul does not pre-exist to its body, but is *created* and *infused* by a single divine act and therefore at a single *instant,*

which is, to follow the more probable opinion in the matter, *the moment of conception.*

Article 2. The Union of Soul and Body in Man

a) Nature of the Union b) Results of the Union
c) Place of the Soul

a) NATURE OF THE UNION

A *union* is either the process of conjoining two or more things into a single reality, or it is the product of such a process. We use the term union to indicate the *process of uniting* when we say, "The union of the colonies was effected by clear-sighted and heroic statesmen." We employ the term in its other sense as the *product or result of uniting* when we cry with Webster, "Liberty and Union, now and forever, one and inseparable," or when we sing, "The Union forever!"

There are two main types of union, to wit, *accidental* union and *substantial* union. *Accidental union* is manifested in the conjoining of realities in such wise that each keeps its own complete nature and operations, and so the elements (i. e., things united) do not fuse together, so to speak, to constitute a new essence. Such a union is observed in a heap of stones, for example, or in a team of horses hitched together to make the one pulling-force which draws the wagon, or in a mixture of water and sand. Such a union also

is the *moral* union, or conjoining of wills, which brings different men together to form one society. Such a union again exists between the motorist and the car he is driving, between the rower and the boat he is propelling, between the organist and the instrument he is playing.—A *substantial* union is manifested by the conjoining of elements in such wise that a new substantial essence emerges. Thus hydrogen and oxygen, for example, are united to form the new substance, water. Water does not exhibit the properties of either of the gases which combined to form it, and by properties, as we have learned (Cf. *Part I, Chap. I, Art. 1, a*), essences are recognized and distinguished one from another. The essence *water* is neither the essence *hydrogen* nor the essence *oxygen*, but a new essence which emerges from the uniting of hydrogen and oxygen. Therefore this union is *substantial*. Another example of substantial union is that of prime matter and substantial form to constitute an actual body. Here the elements do not *change*, as hydrogen and oxygen change in forming water; the elements are *incomplete* substances (not *complete* like the elements of water before their union) and they come together as *complements;* together they fill out *a single completeness* or new essence. The resultant body is not matter alone, it is a specific *kind* of matter; and this specific actuality does not come from its being material, else all bodies would be specifically or essentially the same, which is not the case. Nor is

the body form alone, for, unless it be spiritual, a form cannot exist by itself. The body is not prime matter alone, nor form alone, but a definite individual corporeal substance of a certain essential kind; it is a single substantial composite or compound of matter-and-form.

A substantial union is either simply *essential* or it is *personal*. A simply *essential* substantial union is illustrated in the examples just given; it is the union of substantial elements to form a new essence. But when the new essence is *a complete substance of the rational order*, the union is *personal*. A complete substance of the rational order means a complete substance endowed with the capacity for understanding and willing, even if this capacity be not usable because of immaturity or other obstacle which blocks,—temporarily or permanently,—the acquisition or use of a requisite fund of experience. Thus every man, even an infant, even an imbecile, is a complete substance of the rational order; he is a *person;* and the essential elements unite in him to form *a personal union*.

It is our contention that the union of soul and body in each human being is a personal union; further, we contend that the human soul is, in each human being, the substantial form of the human organism, or, more simply, the soul is the substantial form of the man.

Our doctrine is the common teaching of all the Scholastic philosophers, and it has been admirably proved by St. Thomas Aquinas, following and ampli-

fying the doctrine of Aristotle. There have been, however, notable philosophers who held the demonstrably mistaken view that the union of soul and body in a man is merely an *accidental* one. Plato taught that the soul of a man resides in his body and controls it, much as a rower, seated in a boat, plies the oars and directs the movement of his craft. René Descartes (1596–1650) defined man as a soul, and regarded the vegetal and sentient processes as mechanical. Vicomte de Bonald (1754–1840) held that man is an intellect served by organs,—*une intelligence servie par des organes*. We maintain that man is a composite of body and soul, a single if compound essence, and we hold that soul and body come together in a man, not as hydrogen and oxygen in water (for these gases *change* their proper nature in their fusion) but as incomplete substances which find their complement in union, and result in a substance which is not body and not soul but *man*,—not a mere organism and not a pure spirit but *a single human substance*. The two points we have to prove are these: the union of soul and body in man is a personal substantial union; the soul is the substantial form of the living human body.

1. *The union of body and soul in man is a personal substantial union.* We are to show that the soul and body of a man are so united as to form one *person*. Now, a person is, first and foremost, what philosophers call a *supposit*. A supposit is a complete individual substance which is not part or parcel of another substance. A tree is a supposit, a horse is a supposit. A branch of a tree (while it is still part and parcel of the tree) is *not* a supposit, nor is the leg of a horse a supposit. The branch of the tree and the organic parts of the horse are indeed substantial, but they are not substances which stand, so to speak, on their own feet or exercise their own operations independently of any other substance. For the branch manifests the growth and life of the *tree;* the organic parts of the horse exercise the *horse's* operations. You may, indeed, sever the branch from the tree, and then it *is* a supposit, either as a new plant (if it be such a cutting as can, if planted, sustain life and exercise all the vegetal functions), or as a dying or dead limb of a tree. The leg of a horse, if severed from the organism, *is* a supposit (or, more correctly, it is a parcel of supposits) but it is not an organic or living supposit; it is a mass of dead matter which will presently be resolved into the physical and chemical substances which compose it.

There is an old and true saying that "Actions belong to the supposit." The growth of a branch is the growth of the *plant* to which the branch belongs; the movement of a horse's feet is the movement of *the horse* which uses the feet. If a burglar reaches through a window and takes our valuables, we do not enter suit against the burglar's arm and hand, but against the *man*. For the actions of the man's arm and

hand are the *man's* actions. "Actions belong to the supposit."

Now, if the supposit be "of the rational order," that is to say, if the supposit have understanding and will, the supposit is called *a person*. And if we can show that the actions and operations observable in a man (who is a union of soul and body) are to be referred to one single individual substance, then this substance is not only the result or product of the substantial union of soul and body, but of the *personal* union of these elements. Now, as a matter of fact, all of a man's operations *are* referred to one single individual substance, to wit, the individual man. We know by reflecting upon our own operations that all of them are *ours*. Each of us understands that his growth or his digestive function is *his;* each knows that *he* feels, *he* sees, *he* senses, *he* thinks, *he* reasons, *he* makes up his mind. No one thinks of saying that his eyes see and his mind thinks and his will chooses. He says, "*I* see, *I* think, *I* choose." And he says rightly, for, upon reflection, he is aware that, while he uses his eyes to see and his mind to think and his will to choose, it is truly *he*,—an undivided substantial actuality,—that uses these wondrous instruments. In a word, a man clearly grasps the truth of the fact that his experiences are *his own*. They are, in many cases, under his control. His eyes will infallibly see if he lets them look, but he may refuse to let them look. Distracting

thoughts may oppress his mind, but he can do much to banish them by steadfastly fixing his mind on other things. He may find it hard to make a choice, but difficulty is not impossibility. Many things a man cannot control; he cannot rearrange the circulation of the blood; he cannot, by taking thought add to his height one cubit, or take off as much from his girth. None the less, he knows that his growth is *his* growth; it affects *him;* it proceeds from sources immanently active that have their root and spring in his own life-principle. The individual character of our nature is apparent to each of us. It is especially manifest in matters of mind and will, and through these, it is manifest in merely bodily things. We are aware, with unshakable certitude, that our thoughts and opinions and volitions, our hopes and aspirations and ideals and ambitions, our aches and our pains, our health and fitness, our digestion and growth, all are *ours;* each of us recognizes these things as *his own*. And if there is any value in human knowledge, any certitude in human experience, this elemental certitude of the unity of our nature is a thing truly known and truly certain.

The interaction and interdependence of the operations of a man indicate the unity of his substantial nature. They show that man is a substantial composite, or, in other terms, that his soul and his body are substantially united, and form a *substantial union*. And, since man has understanding and will, this substantial

union is a supposit of the rational order: it is *a person;* and therefore the substantial union of its essential elements is *a personal substantial union.*

One need not go into details to prove the interaction and interdependence of the human operations. We shall discuss presently the precise nature of the mutual influence of body and soul; here we merely consider the fact without discerning its mode. It is a fact which proves beyond all dispute the substantial unity of a man. And the fact is obvious. How is it that a man may find his digestion upset by worry? Worry is mental; it belongs to the rational order or rational life of a man; digestion is vegetal. Yet it is a fact of commonest experience that worry *can* cause indigestion, and, conversely, indigestion can cause mental distress. Who has not felt a loss of appetite for food, or a loss of tendency for sleep, when some dread situation is persently to be faced? Who has not experienced some sentient or vegetal effect of a mental activity? Envision a healthy young student impatiently waiting the dinner-gong. He is ravenous, and plans to create a minor famine when he reaches the table. Before the welcome sound of the bell comes to him, he receives a telegram which announces the death of a dear relative. Gone instantly is his desire for food. And yet the information imparted by the sad message is something which only the *mind* can apprehend. Again, the sentient operations can intimately and instantly affect the rational operations and the vegetal functions. A toothache can make study or mental concentration impossible, and it can upset the nutritive powers and operations. A devoted lover of good music may find the finest symphony unendurable, if he is nursing a collection of boils. A workman in a factory once saw a heavy iron wheel fall upon the foot of a fellow workman. Immediately he ran to the man's assistance. With a mighty effort, he lifted the wheel from the crushed foot. Later he found that he was unable to lift the great weight of the wheel, try as he would. Yet the incident is explicable, and it illustrates the interaction of body operations and soul operations in a man. He *saw* the accident (sentient operation); he *understood* its significance (rational operation); then, in response to his knowledge and the tendency to act on it, certain glands poured their secretion into his blood (vegetal operation) and immensely increased his muscular strength for a short period. It is manifest, and the proof of the point lies within the experience of everyone, that body and soul in man exercise a common joint operation: the *man* feels, the *man* understands and wills, the *man* is nourished and grows. And yet the man is a union of unlike elements, as one knows from their operations. Some of his operations are organic, some are altogether supra-organic and not to be exercised by any bodily part or power. We must conclude that the union of the essential elements

in a man is a substantial and personal union. In other words, the union of *body and soul* in a man is *a personal substantial union.*

2. The human soul is the substantial form of the living body. The human soul is, as we have many times seen, the human *life-principle.* It is that whereby a man is alive and can exercise all the operations of a man. When life is gone, when the life-principle departs at death, the corpse is not a man; it has *none* of the functions or operations proper to a man. Therefore we know that the life-principle is that actuality which is the formal principle of a man's being *as a man,* and it is united substantially with the man's body to form therewith one complete and specific essence. It is the *formal principle* of a man's being, for without it the organism is *not* a man. It is substantially united with the organism (as we have just proved) to constitute a single complete and specific essence. But to say this is to say that the soul is *the substantial form* of the human organism or living body. Thus simply and directly is our point established.

We may state the matter in somewhat different fashion. The substantial form of a body is the determining principle (itself an incomplete substance) which combines with matter in substantial union to constitute a body of determinate species or essence. Now, that which substantially constitutes the human body in its determinate essence as *human* is the life-

principle or soul. For when the soul departs (when a man dies) the body instantly loses its character as a human body; the human essence or species is corrupted or destroyed in that bodily being. Therefore the human soul is the substantial form of the living human body, that is, of the *man.*

Every bodily actuality is made of prime matter and substantial form. Further, every living body has its life-principle as its substantial form. For the life-principle is the thing which constitutes the living body in its complete specific nature. Since the life-principle is the substantial form in *every* living body, the *human* life-principle (or human soul) is the substantial form in the *human* living body.

There can be, of course, no question here of the substantial character of the form which makes the living body *human.* We have already proved that the human soul is a substance, incomplete in point of species, although complete in point of substantiality. For the rest, no *accidental* form could bring substantial determinateness to any essence, nor could the removal of an accidental form induce, of itself, a substantial change in the body which loses that form. Yet the human substance is essentially and substantially changed the instant a man dies; that is, the instant the soul departs. Therefore the human soul is not an *accidental* form. It remains that it must be *the substantial form* of the body which it actualizes in essence and nature.

We shall presently see that man has only one soul (for all he has three grades of life) and this one soul is the spiritual or *rational* soul. Man, therefore, is rightly defined as *a rational animal.* For man is an *animal* organism, and man has reason or is *rational.* This definition of man as *a rational animal* is called a *metaphysical* definition. For a definition expresses an essence; it names the elements or parts of that essence; and the *parts* here named are not *natural* or *physical* parts which can actually be separated one from another; the "parts" here mentioned (i. e., "rationality" and "animality") are realities which the mind understands to be present, but which do not suffer physical partition; the parts here named are *metaphysical.* If you wish to mention the physical and separable parts of a man, and to express or explain his essence thereby, you have *a physical* definition of man. Thus, the familiar definition given in the little catechism is the physical definition of man, viz., "man is a creature *composed of body and soul.* . . ."

b) RESULTS OF THE UNION

The results of the union of soul and body in man are manifold. Here we are to consider three important ones: (*1*) A man is constituted by this union as a single essence and nature with the operations of three kinds of living beings. In other words, a man, although he has vegetal, sentient, and rational operations, *has only one soul.* (*2*) Each man has his own

individual soul; he is not a mere sharer in a kind of universal humanity. (*3*) Soul and body exercise a mutual influence.

1. A man has only one soul. We have seen that the human soul is the substantial form of the living human body. But man has three grades of life: he is nourished, grows, propagates his kind, and in this he is like a plant. He has sensation, appetition, and locomotion, and in this he is like a brute animal. He has understanding and will, and these are his distinctive specific faculties. Has man then three souls, a vegetal soul, a sentient soul, and a rational soul? Or has he only one? The answer is that man has only one soul, and this one soul is the rational spiritual soul, which is in man the principle of his threefold life.

Plato (5th century B. C.) taught that man has a triple soul: an intellectual or rational soul, seated in the brain; a sentient soul situated in the heart, and a vegetal soul in the abdomen. Certain philosophers of the later Middle Ages,—like William of Ockham (1280–1348) and Peter Gassendi (1592–1655),—taught that a man has two souls, one *rational,* and the other *vegetal-sentient.* During the last two centuries some philosophers and scientists have advanced a two-soul theory which assigns to man one *vegetal* soul, and one that is *sentient-rational.* The three-soul doctrine is known as *tridynamism;* the two-soul theory is called *duodynamism;* and the doctrine which we here de-

fend, that man has but one soul, is known as *monodynamism*. These terms derive from the Greek word *dynamis* "power," and the numeral words *treis* or *tria* "three," *duo* "two," and *monos* "only, alone, single."

Sometimes the more modern type of duodynamism (which assigns to man a *vegetal* soul and one that is *sentient-rational*) is called *vitalism*. And *monodynamism* is frequently called *animism*. *Vitalism* comes from the Latin *vita* "life" or *vitalis* "pertaining to life" and literally means the doctrine which defends the existence of a *vital* principle over and above the mechanical and physico-chemical forces which are observed in bodies. *Animism* comes from the Latin *anima* "soul," and literally means the doctrine that there is a soul in man, that is, a rational spiritual soul and no other. But the terms *vitalism* and *animism* are to be used with great caution for they are capable of varying and even entirely unrelated interpretations. Thus in our day *vitalism* is often used as synonymous with *animism*, and yet the terms were originally used to indicate opposed doctrines, viz., a plural-soul theory and a single-soul theory. Again, the term *animism* is used to designate a doctrine far removed from the domain of psychology; it indicates a debased form of religion which amounts to ancestor worship.

Now, the human soul is united with the body as its substantial form. We cannot admit a plurality of substantial forms in a single bodily subtsance. But to

admit the existence of a plurality of souls in the human organism is to admit a plurality of substantial forms in the one bodily substance. Man, if he had three souls or two, would be an aggregate of substances, and not a single substance. But the testimony of consciousness is altogether imperative and inescapable in its urgency against such a possibility. Man is inevitably aware of the fact that the *self* is a single self; that it is the same substantial being which feels and reasons, which grows and wills. Therefore there is a single unifying and determining principle which is the basic and ultimate determinant of the human essence and nature. There is, in a word, only one soul or substantial form in a man, and not a plurality of souls. And, manifestly, the soul which makes a man *a man* and distinguishes him substantially from all other bodily substances is the rational soul. The vegetal soul would not differentiate man from plants; the sentient soul would not differentiate him from brute animals. The rational soul, which we have proved to be simple and spiritual and immortal, is the ultimate *human* determining principle. Man has *one* soul. It is the *rational* soul.

St. Thomas Aquinas, in his book *Summa Contra Gentiles*,—a summary of doctrine written to controvert mistaken pagan philosophy and theology,—says that when once a thing is constituted in its complete essence and nature, it takes on no new form except in an *accidental* way (for if it were to receive a new

substantial form, this would replace the one already there, and the essence would no longer be the complete essence it was, but a new essence). And a thing received or "taken on" accidentally is something outside the established essence which receives it. If, then, the vegetal life-principle is the substantial form of a body, that body *is* and *remains* a plant, and to conceive of a superadded sentient soul or rational soul or both, would leave the body still a plant and nothing but a plant. However, one cannot conceive of a superadded soul which leaves the original soul still in occupation. One cannot conceive of a soul in an accidental capacity; for a soul as such is a substantial form, and it gives substantial determinateness and essential character to that with which it is conjoined. We must, therefore, reject as impossible the plurality-of-souls theory.

We have already noticed the interaction and interdependence (rightly understood) of the three sorts of operations and operating powers observable in a man. There would be no conceivable explanation of this harmonious interaction, and this simultaneous accord of the human functions, if there were three souls, or two, in the same human body. Why should not the several souls act in utter independence of one another? Why should their several types of operation come into activity at the same instant and cease at the same moment? Why should a man not die as a rational being and live on as a sentient being? And,

losing sentiency, why should a man at the same time lose his vegetal powers? Why should he not endure for a time as a plant? And why should not the plant life and the animal life die out of a man and leave him an inorganic body with a rational soul,—if such a thing were conceivable? For three souls are three substantial principles or forms; and three substantial forms are, by their very nature, three *independent* forms. The unified character of man's operations excludes absolutely the possibility of a plurality of souls simultaneously actualizing the same human body. Man has but *one* soul. We have seen that this must be the *rational*, or specifically *human*, soul.

Now, how can the rational soul be the first principle of vegetal and sentient functions in man? How can a spirit be the principle of bodily operation? The difficulty is more apparent than real. For a higher power can possess all the perfection of a lower power, even of an essentially different kind of lower power, and can exercise the operations of the lower power *virtually*. The rational soul is, indeed, *formally* rational; that is, in itself *as such* it is a rational soul and not a vegetal or a sentient soul. Yet, actualizing an organism fitted structurally for vegetal and animal operations, the rational soul has the *virtue* or power of vitalizing the organism according to its connatural capacity for life-power and life-operations. The human soul is thus said to be *formally* rational, and *virtually* vegetal and sentient. Consider an analogy or

two. The King of England appeared recently at naval maneuvers off Spithead as the Lord High Admiral of the British Navy. Being formally, so to speak, the king, he is virtually the lesser officer whose role he chooses to play. Again: the grown man has all the strength of the boy, and something *more.* The man can lift all the weights which the boy can lift, and more too. Once more: Professor Jones, who lectures on metaphysics at the university, may come home and play nursery games with his babies. The babies cannot, one surmises, lecture on metaphysics at the university. The lower power requisite for nursery games does not include the higher power required for lecturing on metaphysics. But the power for lecturing on metaphysics may well include, and indeed should include, the power to appreciate the charm of simple and innocent entertainment; certainly it *can* include the lower power, as the admirable professor amply demonstrates. And so *can* the higher vital principle exercise, in an organism, the lower operations for which that organism is connaturally fitted. The analogies we have employed are admittedly very crude and very defective, yet they may serve to stir a thought for all that.

Reasoning sheerly from the impossibility of three substantial forms simultaneously actualizing a single organism; considering the impossibility of a substantial form existing in an organism as a mere accidental form; noticing the wondrous harmony and unity in

the human functions of the three vital orders; weighing the fact that a superior substantial form may virtually exercise the operations of inferior forms; we are forced to the conclusion that there is in man *one only soul* and that this is the *rational* soul, which we have already proved to be a simple, spiritual, immortal substance. This one substantial soul is, in each man, the substantial first principle of *all* his vital activity.

2. *Each man has his own individual soul.* Not only have there been mistaken philosophers who would dower a man with more souls than he could possibly possess; there have also been philosophers who would not let a man have his own soul, but gave only one to the whole human race, and let each man participate in its service, as a million men walk in the light of one common sun, each employing its service to his own ends. Such was the doctrine of Averroes (d. 1198), an Arabian philosopher who lived in Spain, and whose Arabic name was Ibn-Roschd. But the generality of philosophers has always agreed with the generality of humankind that every man has his own individual soul and is not a mere sharer in a kind of universal human life.

The question is not without its interest and intrigue. It is easy enough to see that each *man* is individual. In these days of thumb-printing and microscopic identification, we are all familiar with the truth

that no two human beings are perfectly alike even in minute bodily particulars. But the soul is a spirit, and a spirit cannot be "individuated" by size or sex or nationality; nor can it be photographed or required to record some sort of spiritual thumb-print. Matter as marked by quantity (or simply "quantified matter") is *the principle of individuation;* it is that whereby one individual is known as an individual, as differentiated from other individuals of the same specific nature as itself. But the form, that is, the substantial form, is *the principle of specification;* it is that whereby a being is actualized in its proper essence or species. Now, Tom and John and Mary and Helen are manifestly different individual persons. But they are not different in point of their species as *human beings.* And it is the soul which makes each of these persons *a human being.* But the body is part and parcel of a man; it is an essential element; it contributes something, when present in its quantified actualness, to the composite which we call *a man.* The prime matter of the body, quantified under the actualness which comes with the actualizing form, is that which *marks* the individual man as *this* man and not *that,* as John and not Helen, as Mary and not Tom. For all the *individual* determinants are, in final analysis, material. An old Latin couplet lists the "individuating marks" of a bodily reality, and we make a free translation of it in the following bit of doggerel:

Form, shape, place, time,
Tribe, country, name;
In no two cases
Are *all* the same.

In other words, no bodily reality (and man is the bodily reality here under consideration) can be exactly identified with another such reality on the score of *form* (accidental form, such as structural form or morphological type); *shape* (individual variety of structural form; also *condition* due to age, health, etc.); *place* of existence and *time* of existence; *ancestry; native land; name.* No two human beings can be the same on *all* these scores. And, in consequence, we distinguish one individual from another. And all these points of individuation have reference to the material or bodily being of the individuated men. Now, when it comes to a spirit, we cannot apply our individuating test; for a spirit has nothing material about it. How is Tom's soul to be distinguished from Mary's soul? You may say that the question is idle so far as living human beings are concerned, for these always are bodily, and the soul is substantially united with the body to constitute each individual person, and shares, so to speak, the individuation which is recognized in the bodily element of the human composite. But the philosopher is not concerned with that alone which is recognizable in the present state of human living beings. He wishes to know whether, as a fact, he can prove that "his soul is his own."

Now, the human soul is the substantial form of the human body. But one and the same substantial form cannot be found in a plurality of individuals. If it could, then the individuals would be no true individuals at all; they would be contradictions unto themselves. If John and Mary and Tom and Helen are *individuals* (as no one doubts) and yet have one common substantial form, it follows that John and Mary and Tom and Helen are one undivided substance, and are *not* individuals after all. Each individual is what it *is;* it has its own *being;* and the principle of its being (as of all its fundamental actualness) is its substantial form. But the being of Tom is Tom's being, not Mary's. Tom is born and grows, and is sick or well, and lives and dies, independently of Mary and Mary's growth and health and life and death. Yet it could not be so, were their life-principle, soul, or substantial form one and the same form. It follows necessarily that each human individual has *his own one soul* and is not constituted and actualized by a general or common human substantial form.

Again we may call upon the testimony of consciousness. Each human being is aware, inevitably and necessarily aware, that he thinks his own thoughts, makes up his own mind, does his own reasoning. These functions are not bodily; they are the operations of the spiritual soul which is the life-principle and the substantial form of a man. But if there were only one human soul for all of us, or if there were only one

human soul for any group of individuals, this independence of spiritual experience would be utterly impossible. There are, therefore, as many souls as there are human beings.

Each man has his own soul. But how is the soul of one man marked, so to speak, as distinct from other souls? Let us employ an analogy. Conceive of pure whiteness (not the varying shades of grayish white that pass by the name) in a bank of snow, a sheet of paper, and a mass of chalk. The whiteness is absolutely pure, and in all three substances it appears the same identical color. How do we distinguish the whiteness of the snow from that of the other substances? Precisely in this, that the whiteness of the snow is the whiteness *of the snow,* and not the whiteness of the paper or of the chalk. Similarly, the whiteness of the paper is *its own,* and is not to be referred to the snow or the chalk. And so with the whiteness of the chalk; it belongs to the chalk, not to the other substances. Although the whiteness is exactly the same grade or degree, and the same essential kind of thing, its individual applications, so to speak, are *distinct,* because of the distinction of the several bodies to which the whiteness is ascribed. Now apply the analogy. Each human soul is, as a fact, the soul of one individual man, and *it bears a real relationship* to the body of that man, the body which it in-forms and actualizes as a human organism. And this relationship (although a thing extrinsic to the soul itself) is indi-

vidual in each soul, inasmuch as it refers each soul to its own individual body and no other. In such a relationship we find the "mark" which distinguishes soul from soul. It is theological doctrine,—and not psychological opinion, although psychology finds the view wholly acceptable,—that in the life beyond the grave, before the resurrection of the body, human souls are distinguished one from another by the *extrinsic but real relationship* which refers each soul to the one individual body which it once actualized and in-formed.

3. Soul and body exercise a mutual influence. We have spoken more than once of the harmonious interplay of vegetal, sentient, and rational operations in a man. It is necessary to raise the point for further consideration. We have to dispose of some faculty notions on the subject, and to determine the character of the efficacy of soul and body in their interaction or mutual influence.

Plato and Descartes denied the influence of body upon soul; and the only influence of soul upon body which they recognized was conceived of as local movement, such as a rower might give to his boat. The doctrine is logical enough in view of the premise which both Plato and Descartes assumed, viz., that the union of soul and body is not substantial but accidental. This premise, however, is, as we have proved,

a false premise. And the conclusion here drawn from it is, as we shall see, likewise false.

Nicole Malebranche (1638–1715) believed that it is impious and false to assume the existence of any activity except divine activity. He denied all activity in creatures, and hence denied the proper activity of man, and the influence of soul upon body and body upon soul. Malebranche explained the vital operations in this way: God produces an effect,—in the vegetal order, let us say. But this effect, since it takes place in a balanced organism which is of God's own making, disposes the sentient and rational parts of man to exhibit a function. It does not produce the operation in the sentient or rational part, it only disposes these for the operation and sets up for such operation *an occasion*, which God takes and so produces the operation. This doctrine is called *occasionalism;* it is a fantastic hypothesis wholly unacceptable. First of all, it makes nonsense of the substantial union of body and soul, and turns these two elements of a man into a pair of machines arranged in a kind of accidental accord, so that when God uses one as the instrument of action, the other is disposed for a similar and harmonious use. Secondly, the doctrine limits the infinite power of God, and makes it impossible for Him to create anything that shall have power to act or operate as a secondary cause (since, indeed, God is the only Primary Cause). Thirdly, the doc-

trine is apt to lead one to a belief in *pantheism* (the theory that everything is part and parcel with the Deity), for if only God can act, the various active things about us may easily be conceived as mere parts or manifestations of God. Fourthly, the doctrine of Malebranche destroys human liberty, and takes from man all responsibility; for if man is not truly active, and not the cause of his actions, how shall he be held responsible for them? Lastly, the doctrine is wholly gratuitous, and has not the shadow of a reasonable argument to offer in its own support.

Gottfried Wilhelm Leibnitz (1646–1716) conceived of body and soul in man as two clocks existing side by side and perfectly synchronized. God is the divine "clockmaker" who has set up these wondrous timepieces, and, by His eternally established plan for a harmonious universe, He keeps the clocks ticking and marking time in perfect accord. If one might conceive of any *influence* of one clock on the other, it would amount to this: that the movement or change of one clock *is sufficient reason* for a corresponding movement in the other, and the second movement actually concurs with the first by the force of the great law of the Creator which keeps the world in harmonious and unconflicting activity. This great law is called by Leibnitz *the law of preëstablished harmony*. It is manifested everywhere throughout the universe, in general as in detailed activities and operations; and so it is manifested in the relationship of

soul and body and accounts for their so-called mutual influence. Manifestly, this doctrine falls under much the same condemnation as that which occasionalism deserves. The theory of Leibnitz would destroy the substantial union of body and soul, and set up in its stead an accidental disposition for agreement or cooperation between the essential elements of the living man. Further, this theory would entirely destroy human liberty and responsibility (and hence would destroy morality) by making all actions and operations the product of an inexorable preëstablished law. Incidentally, the theory would make God the author of all actions, even those that are evil. And, since God, through the law of preëstablished harmony, would be the only active power in the universe, this theory inclines the mind towards pantheism, the most horrible and degraded of all false doctrines. Finally, the theory is gratuitous, and instead of explaining the mutual influence of soul and body, it explains it away and denies it.

A doctrine similar in many respects to that of Leibnitz is the theory of Friedrich Paulsen (1846–1908) who taught that the sentient and the intellectual operations in man proceed, without any real connection, *in parallel series*. Instead of presenting the semblance of two clocks, the soul and body are rather two rails of a locomotive-track over which the only existing energy (a universal will-force, or world-soul) moves to manifest what we call the active life of a man.

Paulsen's doctrine, in general, is called *pan-psychism* (from the Greek *pan* "all," and *psyche* "soul"; for everything is but the manifestation of a universal will-force or world-soul). In special application to man and his operations, this doctrine is called *psycho-physical parallelism* (from the Greek *psyche* "soul" and *physis* "nature") to indicate that the universal soul and man's bodily nature are kept in parallel and harmonious activity. We need not pause upon this strange doctrine for a longer space than is needed to point out that it involves the self-contradictory hypothesis of pantheism, destroys all human individuality, denies the substantial union of body and soul, and contradicts reason and factual experience. Another exponent of the theory of psycho-physical parallelism was Gustav Fechner (1801–1887), the pioneer *par excellence* in formulating the "new psychology" of specialized observation, and application of psychological principles in human relationships and in the departments of human activity, such as commerce, medicine, education, vocational guidance, etc. With Fechner psychology began to emerge from the laboratory and to take up its work in school and hospital, in office and on the street corner. Other names associated with the theory here considered are Wilhelm Wundt (1832–1920) and Friedrich Jodl (1849–1914).

There is a theory called *Behaviorism*, fathered and

fostered by our contemporaries, Drs. Watson and Dorsey, which destroys the interaction of the vital operations and the substantial union of soul and body by ruling out of account all the data of consciousness. Behaviorism holds that all man's actions are no more than the response to stimuli, and a man is no more truly active on his own account than a warping board that twists under the influence of the hot sun, or than a lump of coal that disintegrates and sends off smoke when thrown into the fire. Of course, if we deny consciousness and its proffered evidence, we can prove nothing in any field, least of all can we attach value to the conscious experience which manifests the mutual relation and influence of body and soul in a man. Behaviorism is self-contradictory. It tells us that there is no such thing as consciousness or mind, and asks us to be conscious of that fact and to bear it in mind. Behaviorism is, to judge it on its own principles, but a warped reaction to some unknown stimulus. A behaviorist does not know "how he got that way," nor has he any means of knowing what his way is, since he is wholly unconscious.

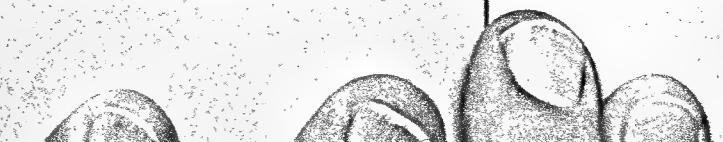
There is another doctrine, favored by some of the followers of John Locke (1632–1704) and the mathematician Leonhard Euler (1707–1783), which exaggerates the influence of the body upon the soul, and makes this *direct*. Yet the body, being material, cannot *directly* influence that which it cannot meet in

quantitative contact, and, of course, the soul is without quantity and cannot receive a purely quantitative impression in a direct manner.

The true doctrine on the mutual influence of body and soul in man may be summed up as follows: (*i*) The soul influences the body *formally* and gives it its being and its capacity for vital operation. This is certain because the soul is the substantial form of the body; it is "the first act of the physical organic body." (*ii*) The body acts *materially* with the soul, or influences the soul *materially*, inasmuch as it concurs with the soul, or suffers the soul-action, in establishing human nature. (*iii*) Once substantially united, soul and body exercise a mutual influence. The soul is the root-principle of all the vital operations in man, vegetal, sentient, rational. And we have seen how these exercise a mutual influence. A vegetal disorder, for instance, can impede rational activity; a mental derangement can have an effect upon the organism; and it is a commonplace that when a man's bodily condition is what it should be, when he is "in the pink of condition," he can do his best mental or rational work. Conversely,—as any nurse or doctor can testify,—the freedom of the mind from worry or distress is a tremendous aid in restoring proper bodily functions, and in helping the body to react properly to the treatment which aims to restore its integrity and power. (*iv*) The influence of soul upon body is physical and direct; it is what philosophers call a *physical per se* influence. The influence of body upon soul is physical, but not direct or *per se*. For the body has, in itself, no power of direct influence except in the quantitative relation; the body *per se* is not active but passive. It is the soul that is the seat of vital activity in bodily man. Hence, while there is unquestionably an influence working from body to soul, the body, to exercise such influence, must first be alive, must first be vitalized *by the soul*. In the last analysis, it is the soul which is the root-source of bodily activity, even of such as turns its influence back upon the soul. As Fr. Lortie remarks,—in his *Elementa Philosophiae Christianae*,—"it would be truer to say that the soul acts *on itself through the mediation of the body*" than to say that the body acts on the soul.

c) PLACE OF THE SOUL

We are here to determine the locus or "seat" of the soul in man. The soul is said to be *located* in the body. Therefore it is an interesting and important question which asks *where* precisely the soul is situated, and *what is the nature* of its placing or location. We shall find that the soul is *everywhere* in the living body, and is not to be assigned to head or heart or trunk or member, to the exclusion of other parts of the body. The soul is in the body and is not limited to one organ in the body. Further the *whole* soul is in *every part* of the living body; every part that shares the life of the body has the life-principle of the body.



And since the life-principle in man is indivisible and uncomposed, it cannot be partly in one place and partly in another; wherever it is, it is in its entirety. There is no contradiction here, as we shall presently see. First, however, we must determine how a thing can be *in a place*, and how one thing can be *in another thing*.

A thing that is in a *place* in such wise that its bodily dimensions correspond with the bodily dimensions of the spot where it exists, is said to be *circumscribed* (from Latin *circum* "around," and *scribere* "to write") by these dimensions. One might use in illustration the child's familiar action of placing a round object, such as a coin, upon a sheet of paper, and drawing a line about it with a pencil. The circle on the paper indicates the outline of the coin's dimensions, and also the outline of that area of paper on which the coin rests; these two outlines or dimensions are coincident; the coin is *located* on a spot that is "written around" or circumscribed by the common dimensions of the coin and the area of paper on which it rests. To be thus *in a place* is to be located *circumscriptively*. Manifestly, only a body can be in a place in this manner, for only a body has the external material dimensions that can be "circumscribed." We know, therefore, at once, that the soul is not in the body *circumscriptively*, for the soul is not a body but a spirit.

A reality can be in a place, or in another thing, in

other ways. It can be there *operatively* if it exercises its power in a literally located (i. e., circumscriptively located) body. Thus the life-principle in any living body is located, is in the *place*, which is occupied by the living body itself. The life, and the life-principle, of the tree is where the tree is. You cannot measure the location of the life-principle or the life of the tree with ruler or tape-line. But you can measure the *tree* so, and where the tree is, there is its life and life-principle, not indeed circumscriptively but *operatively:* the life and life-principle *operate* in the *located tree*. Similarly, the substantial form of any body is where that body is. Wherever the block of marble is it is marble; its "marble-ness" is, so to speak, "located." This sort of location or place is called *informative*, for the substantial form *in-forms* the matter and makes it the specific kind of matter that it is: marble, in our example, and not wax, nor lead, nor mud, nor any other substance except marble. Accidental forms also in-form a body and are "located" where that body is. Thus the hardness or the roughness of the marble block is located where the block is located. Forms are located *informatively;* they are *informatively* in the place occupied by the body which they in-form. Created *forms* which are made to in-form bodily reality are also said to be "located" *definitively* in the body or bodies which they in-form; that is to say, they are definitely and definitively in such bodies and exercise their effect there and *no-*

where else at the same time. Thus the substantial form of this marble block is here in the block, not in another block or in another substance; and the hardness or roughness of the block is not the hardness or roughness of something else.

We assert that the human soul is in the human body informatively, operatively and definitively. Further the whole soul is in every living part of the living body.

Plato taught that the rational soul is in the brain; the old Greek Stoics (4th and 3rd centuries B. C.) thought that the soul is in the heart; Descartes believed it to be located in the pineal gland (a tiny gland in the brain). These opinions arose, of course, out of the fundamental mistake of making the union of soul and body an accidental union and not a substantial one, as we have proved it to be in fact. We notice the following points of true doctrine:

1. *The entire soul is in the body taken as a whole.* The whole body is alive; and it is alive by reason of its life-principle. Therefore where the life-principle is not found, life is not found. But life is found in the whole organism. To state the same doctrine in different terms: the soul is the substantial form of the body and gives it being and character as an organic human body. But the whole body has the being and character of an organic human body. Therefore the whole soul is in the whole body. The entire body lives by reason of its one life-principle or substantial form

which is, to speak metaphorically, "coextensive" with the body which it in-forms.

2. *The entire soul is in every part of the living body.* The soul has no parts, and hence cannot be partly here and partly there. It cannot be conceived as a kind of internal shadow-man which maintains a "shape" inside a human being like the outer shape of the body: having arms inside the arms and head inside the head, and so on. Wherever the soul is, it must *all* be there. It is simple and indivisible. Therefore the entire soul is in every part of the living body. The student will probably recall the sneering Dr. Wilson of Canon Sheehan's *Luke Delmege*. When this present question was discussed at a dinner-table, and the conclusion we have reached was enunciated, the Doctor pulled a hair from his head and held it in the candle-flame, saying, "My fluttering soul, farewell!" Of course, the Doctor merely aired his ignorance, if not his inability to understand the terms of the discussion in which he had borne a scornful part. Any member of the body which is severed from the unity of the organism ceases to be in-formed by the substantial form of that organism. Therefore, although it is literally true that the soul is in hands and feet as well as in head or heart, the soul is not cut or divided when hand or foot is severed. The severed member is withdrawn from the in-forming action of the soul; it is substantially changed; it is really no longer a hand or foot at all. Of course,

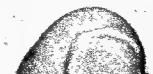
Dr. Wilson's foolish gesture was born of his failure to understand the "location" which we have called *informative, definitive,* and *operative;* the Doctor could grasp nothing but *circumscription* as the meaning of *location,* and circumscription affects bodily beings only.

3. The soul does not exercise all the operations of which it is the root-principle in each and every member of the body. The soul is, indeed, present in its essence in each and every part of the living body. But the operations of the organism (which is material, and composed of parts) are diversified, and the vegetal and sentient operations require their several distinct organs. One does not hear with the toes or see with the ears or taste with the eyes or digest food with the nose. The one soul is the root-principle of all vital activities, but it exercises its power through different and differently located parts of the organism. We may say, indeed, in a sort of poetical way, that the soul is chiefly in the head and the heart. But this statement is not *literally* true. It is justified only in view of the fact that the chief organ of sentient life is the brain, and the chief organ of vegetal life is the heart.

Summary of the Article

In this Article we have learned the meaning of *union,* and have defined *substatntial union* and *accidental union.* We have seen that substantial union is

simply substantial or it is *personal.* We have proved that the union of soul and body in man is a *personal substantial union,* and that the human soul is *the substantial form of the living body.* We have studied the results of this union, and have seen that, because of it, man is necessarily a *one-souled* creature, and the single soul is *the rational soul* which is, in each individual man, *his own individual soul,* and which is the root-source in him of all his vital operations, vegetal, sentient, and rational. As a further result of the substantial union of soul and body in a man, we have noticed *the mutual influence* exercised by body and soul, and we have determined the nature and the mode of this influence. We have discussed the question of the location or seat of the soul in the human organism, and have learned that the one soul of man (which is the rational spiritual soul and the substantial form of man) is *wholly in the whole body* and *wholly in each part of the living body* (by a totality of essence), but that *it does not exercise all the operations of which it is first-principle in every part of the organism* (it is not everywhere in the body by a totality of power or operation). We have discerned the manner of the soul's location in the body as *non-circumscriptive* (for the soul is a spirit and not a body with dimensions), *informative, definitive,* and *operative.*



CHAPTER II

HUMAN SENTIENCY

This Chapter discusses the sentient powers or faculties of man and the operations which proceed from these faculties as from proximate principles. While our chief concern in major psychology is the rational life of man with its faculties of intellect and will, we recognize the fact that man's soul and body form one substantial compound and that the rational life of man in this earthly existence is, so to speak, rooted in sense and sentiency. We must therefore make a study of the human sentient faculties and operations before we take up those of the rational order. The present Chapter is divided into four Articles:

Article 1. Nature and Kinds of Faculties
Article 2. Sensation
Article 3. Appetition
Article 4. Locomotion

Article 1. Nature and Kinds of Faculties

a) Nature of Faculties b) Subject of Faculties
c) Classification of Faculties

a) Nature of Faculties

There is a Latin word *facultas* ("ability" or "power") which derives from the verb *facere* "to make, to do." The English word *faculty* has its ancestry in these Latin words. A *faculty* is a capacity or power for making or doing. It is also a capacity or power for receiving, but not for receiving in a life-

less and passive way like that in which moulding-clay receives the shape impressed upon it. A faculty, inasmuch as it is a capacity for receiving, is a capacity for actively receiving; perhaps we had better say it is a capacity for vitally *reacting* to what it receives. For a faculty, strictly understood, is a *vital* capacity or power; it belongs always to a *living* substance.

A *faculty* may be defined as *the immediate and proximate principle of vital operation*. A man, for example, sees. Seeing is a vital operation. Now, the principle of that operation is *that from which the operation proceeds*. And in the operation of seeing we distinguish three principles. The *man* sees, and the man is therefore a principle of the operation of seeing. The man has a *nature* which equips him for seeing, and this nature is therefore a principle of the operation. Finally, by reason of his nature, properly complete in all integral equipment, the man has a power, capacity, or faculty for seeing, and this faculty is a principle of the operation. In a word, the three principles of the man's operation of seeing are: the man, his nature, his seeing-faculty. Now, the man is called the *principium quod* (the principle *which*) of the seeing; he is *that which* or *the one who* exercises the operation. But the man is not the immediate and proximate principle of the seeing; he does not exercise the operation of seeing by the very fact of his being a man; for he would still be a man if he were blind. Hence, while the man is a principle of his see-

ing, he is a remote principle of the operation, not the immediate and proximate principle which gives rise to the operation directly, nothing else intervening. Man's nature is the *principium quo* (the principle *by which* or *whereby*) of the operation of seeing; but it is not the immediate and proximate principle; it is still remote. For were the man in question blind, he would still have human nature, granted a human nature lacking in one of its connatural functions and, in so far, an imperfect nature. Hence, the man's nature is the *principium quo remotum* (the remote principle *whereby*) of the operation of seeing. Finally, the faculty or power of sight is a principle of the operation of seeing. It is the *principium quo* (the principle *whereby*) of seeing, and it is the principle which immediately operates in the function of seeing, no other principle intervening. Hence the faculty of sight or of vision is the *principium quo proximum* (the immediate or proximate principle *whereby*) of the seeing-operation. A man can be a man and not be able to see; he can have human nature and not be able to see; but he cannot have the faculty of sight and not be able to see. The faculty of sight or of vision is the immediate and proximate principle of the operation of seeing. And so it is with all the faculties of man. Each is *the immediate and proximate principle* of a special vital operation.

We have seen that, in every living body, the soul or life-principle is the substantial constituting *form*.

It is this *form* which is the root-source of *all* vital activity in the living body. Therefore, the soul of a man is the root-source or radical principle of all human activities, vegetal, sentient and rational. Now, there have been psychologists who declared that the soul itself is the only human *faculty;* that our distinction of vegetal, sentient, and rational faculties in man is a distinction based on appearances merely and lacks reality. These psychologists maintain that there is no *real* distinction between the soul and its faculties. This view is wholly inadmissible. The soul and its faculties are really distinct. The soul *has* faculties; it is not correct to say that the soul *is* its faculties. The soul is a substance, and faculties are not substances, but are to be classed with accidents. Further, if the soul and its faculties were one, the faculties would be one, each would be identified with every other. And surely there is a real distinction between an organic faculty like the power to see or to hear and an inorganic faculty like the power to reason. We conclude, perforce, that between the soul and the sentient faculties there is a real distinction. And it is no less clear that there is a real distinction between the soul and its proper or rational faculties. The soul is not its understanding; the soul understands by reason of its understanding. The soul is that which wills; it is not its willing. Therefore, the soul is not to be identified with its faculties; between soul and faculties there is not merely an apparent but a real distinction.

Faculties, therefore, are powers or capacities, really distinct from the substance which exercises them, for the immediate discharge of vital operations.

b) THE SUBJECT OF FACULTIES

The *subject* of a faculty is that in which the faculty immediately resides. It is that which operates by means of the faculty. Man is, of course, the subject of all human faculties. But, looking into the question a bit more closely, we find that some faculties are inherent in the soul alone, while others are inherent in the composite of soul-and-body. The body alone is not the subject of any faculty; for the body alone is lifeless and incapable of vital operation. The body is alive by reason of its substantial union with the soul. And there are human operations which require, for their performing, the vivified body, that is, the living union of body-and-soul. Such are the vegetal and sentient operations. The soul alone could not exercise these operations. The soul is a spirit, and hence cannot *of itself* grow, or digest a dinner, or go for a walk. The soul is, indeed, the radical first principle of growth and digestion and movement in a living body, but it requires the body for the exercise of these operations. Hence the *subject* of the vegetal and sentient faculties is *the composite of body-and-soul.*

There are other operations which the soul can exercise of itself, without the body. These are the rational operations of understanding and willing, which

are exercised by a spiritual being and *of themselves* require no bodily function to supply them occasion for action or to subserve their exercise. However, since man is, in this earthly existence, one single substantial compound of soul-and-body, the soul has no way of getting at the objects of rational activity except through the mediation of sentient experience. The soul must come at purely intelligible objects by somehow working them out from the data of sense. Hence all our knowledge, even the most abstract, *begins* with the cognitive action of the senses. It does not *end* there indeed. The soul, by exercising its faculty of intellect or understanding, rises from the concrete and individual data supplied by sentient experience to abstract and universal concepts and to the function of abstract reasoning. As for willing, this soul-function follows upon the operation of intellect and presupposes it. So we say that the soul,—even though *in this earthly life* it requires the organic body and its operations before it can lay hold of the objects of the intellect and will,—is itself the subject of these two rational faculties.

Summing up, we find that in man *the soul alone* is the subject of the faculties called intellect and will. The *soul-and-body,* the human organism, the single human compound substance, is the subject of the faculties of the vegetal and sentient orders.

From the foregoing it follows that when the soul leaves the body at a man's death, it retains its own

proper faculties of intellect and will, and can, without the body, exercise the rational or spiritual operations of understanding and willing.

c) CLASSIFICATION OF FACULTIES

1. An *active* faculty lays hold of an object and transforms it. Thus the faculty of nutrition is an active faculty; it takes food and transforms it into the living substance of the organism. A *passive* faculty receives an impression from its object and reacts to it. Thus sight or hearing receives the impression of visible or audible objects, and, by reacting to the impression, lays hold of the objects cognitively or knowingly. The passive faculties do not work upon their objects to transform or change them, but to grasp them cognitively *as they are,* leaving the objects in their otherness, and possessing them *in knowledge.* The term "passive" is not to mislead us here; the passive faculties are not purely and supinely passive; they are not active in the sense described above, but they are re-active; they are rightly called *operative.*

2. An *organic* faculty operates by means of the body or a special part (i. e., an organ) of the body. All vegetal and sentient faculties are organic. An *inorganic* faculty has no organ, no special bodily part designed to serve its operation. Hence an inorganic faculty is not a bodily faculty but a spiritual faculty. Intellect and will are the inorganic faculties of man; their subject is the spiritual soul.

3. A *vegetal* faculty is an organic capacity for taking nourishment, growing, or reproducing. A *sentient* faculty is an organic capacity for knowing objects which fall under the range of senses (external or internal), for appetizing what is so known, or for moving from place to place. A *rational* faculty is a faculty for understanding or willing.

4. A *cognitive* faculty is a faculty for knowing. An *appetitive* faculty is a faculty for tending to act upon knowledge. The senses are *sentient cognitive faculties;* the intellect is *the rational cognitive faculty.* The faculty for acting upon what is known by the senses and in a sentient manner is called *sentient appetency.* The will is *the rational appetency.*—The faculty of a living body to move about is called *the locomotive faculty.*

Human faculties may be classified as follows:

Vegetal	nutritive faculty augmentative or growing faculty reproductive or generative faculty
Sentient	cognitive faculties (i. e., *the senses*) appetitive faculty locomotive faculty
Rational	cognitive faculty (i. e., *the intellect*) appetitive faculty (i. e., *the will*)

We have already studied the vegetal faculties and operations, even as these belong to man, in Minor Psychology (Cf. *Part First, Chap. II, Art. 2*). We

are, therefore, here concerned with the sentient and rational human faculties and operations. We may notice in passing that the term *faculty* is very often restricted to the sentient and rational orders, and that the term *power* is more usually employed to indicate the faculties of the vegetal order. Thus, to follow this fashion of speech, we should talk of vegetal *powers*, of sentient *faculties*, and of rational *faculties*.

SUMMARY OF THE ARTICLE

In this brief Article we have learned the meaning of *faculty* in its psychological implication. We have defined the term and have discussed faculties in general. We have noticed that a real distinction lies between the life-principle or soul and the faculties of the living creature animated by that soul. We have discerned the proper *subject* of human faculties, assigning the rational faculties to the soul alone, and the vegetal and sentient faculties to the compound human substance of soul-and-body. We have classified faculties and have set out the schema or schedule of human faculties.

ARTICLE 2. SENSATION

a) Nature of Sensation b) The Sentient System
c) The Senses and Their Objects d) The Sensing Process

a) NATURE OF SENSATION

Sensation is a word of manifold meaning. In what may be called its operative meaning, *sensation* is the

activity of a sense as it lays hold of a suitable object. In another phase of meaning, *sensation* is the result or fruit of the activity of a sense. Thus the activity of the sense of sight, exercised in apprehending a visible object, is *sensation*. And the fruit of the activity, the finished product of seeing, is a *sensation*. To put the matter in another way, sensation, as an activity or operation, is more precisely called *sensing;* the object sensed, as now apprehended or known, is *a* sensation. A third meaning of the term *sensation,*—a meaning which, in some manner, includes the other two,—is this: sensation is the capacity or power of a living body to exercise the sense and to experience in itself the result of this activity.

Contrast *sensation* and *perception*. When I sense an object,—say, for example, a warm radiator,—I gather various points of knowledge, I experience several phases of the thing sensed. I sense warmth, smoothness, hardness,—all by the sense of touch or feeling. Each of these is *a percept*. The sum of the percepts is my *sensation* (that is, the fruit or product of the sensing) of the warm radiator, acquired by the sense of touch. I *sense* the object by *perceiving* that it is warm, and hard, and smooth. Thus *a sensation* is sometimes the sum of several *percepts*. Sometimes, however, the sensation is simple and not compound, and then the sensation and the percept are one and the same. Indeed, sensation and perception are only two aspects of one reality. In so far as my senses

make me aware of objects, I experience *sensation;* in so far as the objects present phases for my sensing-activity or grasp, I *perceive* them and experience *perception.* I perceive, for example, that the morning cup of coffee is liquid, and hot, and aromatic, and of definite flavor and color. Sight, touch, and taste are the senses employed to gather these percepts which come together to make up my sense-knowledge or sensation of coffee.

Sensation as an operation (that is, as *sensing*) is the activity of a sense. Now a sense is an organic cognitive faculty; a sense is a bodily knowing-power. While we speak of bodily *appetition* (tendency to follow and act upon sense-knowledge) and *locomotion* (movement to carry out the drive of appetition) as *sentient,* we do not call these powers *senses;* we call them *sentient* because they belong to that order or grade of life which is, first and fundamentally, a *sensing* order, and because appetition and locomotion presuppose the activity of sense. A sense, we repeat, is an organic cognitive faculty. Each sense is exercised by means of the body or by a special bodily part or member, and this is called *a sensory, a sense-organ,* or simply *an organ.*

That which sense lays hold of through its organic action is *the object* of sense. Sense-objects are known as *sensile objects, sensiles,* or *sensibles.* An object knowable by one sense alone (as color, for example,

is knowable by sight) is called *the proper object* of that sense. An object that is knowable by two or more senses (as bodily movement, for instance, is knowable by sight and also by touch) is called *the common object* of the senses concerned. Proper and common objects come together to constitute *the object per se* of the senses which perceive them. A sensile that is not directly perceivable by any sense (that is, not perceivable *per se* or in itself), but is sensed by its known association with that which is directly sensed, is called the accidental object or, more commonly, *the object per accidens* of the sense that indirectly perceives it. Let us illustrate this matter. I can tell whether a wheel is in motion by looking at it, by touching it, and even by listening to find whether it makes the humming sound usually made by whirling objects. Now, bodily movement is the common object of sight and touch, but it is not the object *per se* of hearing at all; one cannot hear movement itself. But I know by experience that a whirling wheel usually makes a humming sound, and through the sense of hearing I grasp this sound as the *proper* and *per se* object of that sense. And through this *per se* object I (indirectly or accidentally) perceive what experience has taught me to associate with it, namely, the *movement* of the wheel. And thus I say that bodily movement is, in this instance, the object of hearing: I *hear* the wheel move,—not indeed *per se* but *per*

accidens. Similarly, I *see* that the ground is wet after a shower. Now, I cannot see wetness; it is not the proper object of sight, nor is it the common object of sight and another sense. But I know by experience that wet ground has a certain appearance; this appearance is visible, and, accidentally to this visible object, I perceive the wetness—I *see* that the ground is wet. I perceive the wetness *per se* by the sense of touch, and can know that the ground is wet by touching it with my hands or walking barefoot upon it. But I also perceive the wetness *per accidens* by the sense of sight, and I see that the ground is wet.

We may sum up this important doctrine on sense-objects in the following simple schema:

Sense-objects { per se { *proper* to one sense alone / *common* to two or more senses } / per accidens }

Sometimes the *object per accidens* is not, in itself, a sense object at all; it may be an object knowable only to the intellect, but manifested or accompanied by sensible characteristics, and through these the sense is said to perceive the object itself. Thus we *see* that a man is alive. Life is not visible, nor is it the object of any sense. We do not hear life or smell or taste it; we do not know it by sight or by touch; we cannot have a concrete image of it in the interior sense called imagination. But we *understand* what

life is. Our intellect, rightly interpreting the findings of the senses, has discerned properties and attributes in living bodies which enable it to formulate the concept, the understanding grasp, of what *life itself* really is. And since the essence of reality called *life* is regularly manifested in organisms by sensible signs, the senses which lay hold of these signs are said to perceive life, not indeed *per se*, but *per accidens*. We know that a man is alive because we see him move, we hear his voice, we feel the vibrant grasp of his hand. These things are sensible *per se*, and by and through them (i. e., *per accidens*) we sense the life which they manifest.

b) THE SENTIENT SYSTEM

The chain or connected group of organs which make up the equipment of a living body for a certain type of activity is *a system*. The sentient system is part of a larger system called *the nervous system*, through which both vegetal and sentient operations are exercised. The vegetal operations of man (nutrition, growth, and the formation of the reproductive cells) are discharged by nerves and muscles which constitute *the sympathetic system*. The sentient system is properly called *the cerebro-spinal system*. It is apparent that the sympathetic system and the cerebro-spinal system together constitute the human nervous system. The cerebro-spinal system has three main parts or branches, to wit, an *inner*, an *outer*, and a

connecting part. The inner part is *the cerebro-spinal axis*, and consists of the brain and the spinal cord. The outer part consists of *the external sense-organs*. The connecting link between inner and outer parts is made of *the cerebro-spinal nerves*.

1. *The cerebro-spinal axis* consists of brain and spinal cord. The brain has three main parts. The larger part (called the large brain) fills most of the skull from the forehead back; it is called *the cerebrum*. It is a soft mass of matter, made of an outer coating of gray cellular substance and an inner body of white nerve-fibers. The cerebrum is, so to speak, *folded* into its place, and has, in consequence, deep furrows and wrinkled folds; the furrows are called *fissures* and the folds are *convolutions*. The chief fissure runs through the center from front to back and lies just under the "part" of hair that is "parted in the middle." This is called *the medial fissure* or *the median fissure*, and it divides the cerebrum into halves which are called respectively *the right hemisphere* and *the left hemisphere*. Each hemisphere has a front, a middle, and a rear section, marked off by fissures, and these are called respectively *the frontal lobe*, *the parietal lobe*, and *the occipital lobe*. The cerebrum consists of millions of *neurons* or nerve-cells which intercommunicate in a marvellous manner and have, in general, a connection with the fibers or chains of neurons called *nerves*. The nerves reach on through

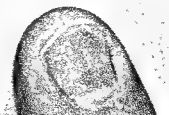
the outer brain and down the spinal cord whence they branch out through the body to the sense-organs, the muscles, the blood-vessels, and the glands.

Below the cerebrum or large brain, and at the back of the head, lies the second main part of the brain: it is called *the cerebellum* or the little brain. Like the cerebrum, it is divided into two hemispheres.

Under the cerebellum, and connected with it (and through it, with the cerebrum) lies the third main brain-part, which is the widened upper end of the spinal cord: it is called *the medulla oblongata* or oblong marrow.

The cerebrum seems to be the seat of sense-memory and imagination. The cerebellum appears to have much to do with controlling and coördinating bodily movements (*locomotion*) and may be the seat of sense-appetency (*appetition*). The medulla oblongata is the seat of the nerves of the face, and of the nerves which control the activity of heart and lungs; it seems also to be the center of the vegetal operations in man.

The spinal cord (which spreads and flattens at the top to form the medulla oblongata) narrows at the base of the medulla and enters the hollow center of the backbone, or spinal column, extending downward to the lower sections of the backbone, thinning as it goes. The spinal cord consists of the various nerves (i. e., nerve-fibers) which are welded into larger units called *tracts*. The backbone or spinal column,



which is the bony case of the spinal cord, is made up of little sections, set with comparative looseness one on the other; the sections are called *vertebrae*. Nerves branch out from the spinal cord through the space between each pair of vertebrae, and terminate in organs, muscles, blood-vessels, and glands. The cerebro-spinal nerves constitute the connecting link between the outer organism and the cerebro-spinal axis; we shall speak of them in a moment. It is interesting here to notice that the spinal cord is made of an outer shell or coating of white nerve-fibers uniting into tracts, and an inner core of gray cellular matter, while the cerebrum and cerebellum are gray outside and white inside. The medulla oblongata has a structure like that of the spinal cord, and indeed it is the widened upper portion of the cord itself.

2. *The cerebro-spinal nerves* which connect the organs, muscles, blood-vessels, and glands, with the central axis, reach from the spinal cord through the spaces between the vertebrae and extend through the organism. Some nerves carry impressions inward from organ to brain; these are *sensory nerves* (called also *afferent* nerves). Other nerves carry an impulse (which is a response to the stimulus carried in by the sensory nerves) outward to organs, muscles, vessels, and glands; these are *efferent* nerves or *motor nerves*. *Efferent* is the better name for these nerves; it means "carrying outward"; and *motor* nerves are specifically

those efferent nerves which carry impulse to the muscles of the organism so that some movement results. Sometimes the sense-stimulus is carried by the sensory nerves all the way to the brain, and the response comes from the brain along the track of the efferent nerves. But often the sensory nerves do not carry their stimulus the whole distance to the brain; their "message" or stimulus jumps across to the motor-process, and the reaction or response goes to muscle and organ by a shortened route. When this occurs we have what is called a *reflex*. A reflex is an involuntary response to sense-stimulus. Coughing, sneezing, winking the eyelids many times a minute as we all do,—these are *reflexes*. A cough that is forced is not, of course, a reflex; nor is a deliberate blinking of the eyes. A stimulus that goes all the way to the brain arouses consciousness which, in man, is an awareness of the stimulus which gives him some choice in deciding what to do about it. But in reflexes the will has no play. We may be conscious of the reflex after it has occurred, and indeed so immediately afterwards that our awareness of it is almost concomitant with it. But in reflexes the stimulus and response are over and done before any choice or decision can be exercised. The time-interval between a stimulus and its response is usually very brief, and it varies for the various senses and for different conditions and circumstances which affect the organism. This time-interval is known as *reaction-time* or *psy-*

chological time. Some success has been achieved by psychologists in measuring it experimentally. The interplay of sensory nerves and efferent nerves is wondrously complex. Some appreciation of it may be gained from the consideration of the nerve-connections possible within the brain itself. On this point, Professor H. C. Warren (in *Human Psychology*, ed. 1920, pp. 41, 42) says, "We may liken the brain to a telephone exchange, in which any one of thousands of subscribers may be joined up with any other. The analogy is not quite correct, since sensory neurons are never joined with other sensory neurons in complete circuit. If we suppose our telephone wires divided into two groups, those which receive messages but do not respond, and those which make calls but never receive messages, the analogy will hold."

3. The sense organs or sensories are those external bodily parts which are structurally adapted for various sentient functions, and which receive impressions from their respective objects and so take on the stimulus which is then conveyed to the central axis (or through a reflex circuit) by the sensory nerves, and knowledge (i. e., sentient knowledge) results or may result. We shall gain a fuller knowledge of the sensories and their operation from the study of the various senses and their respective objects which is now to follow.

c) THE SENSES AND THEIR OBJECTS

There are in man five *external* senses and four *internal* senses. The external senses are: *sight, hearing, smell, taste, touch.* The sense of *touch* (which is what one ordinarily means by bodily *feeling*) includes what some physiologists call the resistance-sense, the temperature-sense, the sense of pleasure, the sense of pain, and the muscular sense. The internal senses are: *the imagination, the sentient memory, the central sense,* and *instinct.* The imagination is sometimes called *the fancy.* Instinct is often called by the old name of *the estimative sense* or *the estimative power,* or simply *the estimative.*

Mather Mercier Moore 8

1. *Sight or vision* is the sense by which bodily objects are perceived inasmuch as they have *colored surface or surfaces.* We judge many things on the basis of what we see,—distance, for example, and motion. But the *proper object* of the sense of sight is *colored surface.* Things wholly colorless cannot be seen, nor can they be judged as to size, distance, or motion. It is because a bodily object is *colored* (i. e., has colored surface) that we are able to see it, and to perceive its size, shape, movement or rest, nearness or remoteness. We see size, shape, etc., as *per se* objects of sight, but not as the *proper* object of this sense; these objects are *common* to sight and to another sense, mostly touch. But the common objects

of two or more senses are perceived respectively by these senses only in and through the respective *proper* objects of the senses in question. Thus, we repeat, the objects which sight has in common with another sense or other senses, are perceived by sight (and perceived *per se*) only inasmuch as such objects exist in a bodily reality which is *colored*, or, to be precise, which has colored surface.

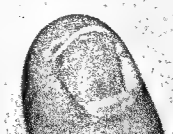
The organ of sight is the eye. The eyeball is somewhat like a camera. The pupil is the widening and contracting "shutter" over the lens, and, at the back of the eye, in place of film or plate, is *the retina*. The space between lens and film (pupil and retina) is not empty, but is filled with a clear jelly-like mass called *the vitreous humor*. The retina is no lifeless film, but is capable of receiving endless successive impressions in a vital manner; it is connected with the optic nerve (or seeing nerve), the terminations of which constitute what are called *the rods and cones* of the retina. A *visible* object (i. e., an object presenting colored surface under due conditions) falling within the range of vision, casts its image on the retina, whence by the rods and cones (i. e., the optic nerve) it is carried to the brain, and the response is the active *seeing* and the *knowing of the object as a thing seen*.

The medium through which colored surfaces are carried, so to speak, to impress their images upon the organ of sight, is *ether in waves* or in wavy motion. The length of the waves and their frequency vary

for the various colors. (Modern psychologists speak sometimes of "colorless" sensations of sight, in which blinding white, gray, and black affect the visual or seeing sense).

2. *Hearing or audition* is the sense by which bodily objects are perceived inasmuch as they have *sound*, that is *noise*, or *tone* with *intensity* and *pitch*. The proper object of hearing is *sound*, and it is carried to the sense through the medium of air-vibrations. The organ of hearing is the ear, particularly the membrane of the inner ear, in which the terminations of the acoustic nerve (or hearing nerve) are located. Bodily objects which come together or strike on one another in such wise as to set up suitable air-vibrations are the originators of sound; the vibrations vary in rapidity and volume for the different sounds. These vibrations pass through the air and are caught by the outer ear and directed into the channel which guides them to the membrane of the inner ear where they stimulate the terminals of the acoustic nerve, and hearing results.

3. *Smell or olfaction* is the sense by which bodily objects are perceived inasmuch as they have odor. *Odor* is the proper object of this sense. The organ of smell is the nose, especially the membrane which lines the upper nostrils and which contains the terminations of the olfactory nerve (i. e., the smelling nerve).



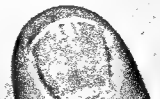
Minute particles of odorous substance are breathed in through the nostrils with the air, and when these come in contact with the nasal membrane, they stimulate the terminals of the olfactory nerve, and the operation of smelling results.

4. *Taste or gustation* is the sense by which bodily objects are perceived inasmuch as they have flavor or savor. The proper object of taste is *savor in a sapid substance which comes, while in solution in the saliva, into contact with the terminations of the gustatory or tasting nerve on the tongue and palate.* The terminals of the gustatory nerve are called "taste buds." When these are stimulated in the manner indicated, the operation of tasting results.

5. *Touch or feeling* is the sense by which bodily objects are perceived inasmuch as they are hot or cold, hard or soft, rough or smooth, pleasurable or painful, taut or relaxed, wet or dry or "sticky," etc. Touch is a most complex sense; its proper object must be discerned in its definition just given. The organ of touch is, first and foremost, the dermis or underskin, particularly the papillae or buds of the dermis, for these are the terminations of the tactual nerve or touching nerve. Such papillae seem to exist also within the organic tissues or flesh throughout the body; or it may be more accurate to say that the tactual nerve sends its fibers nearly everywhere throughout the

body-mass as it reaches on to the dermis, and wherever these fibers are stimulated, throughout their length at any point, the sense of feeling is exercised. The dermis-papillae are most numerous in the finger tips. Contact with tangible objects stimulates the tactual nerve and gives rise to tactual sensation, that is, to the operation of touching or feeling. The sense of pleasure is regularly a result of high and pleasing stimulation of a well-conditioned tactual nervous structure; the sense of pain is regularly the excessive stimulation of the tactual nerve, or the stimulation which an ill-conditioned nervous structure is not fitted to receive. The muscular sense is the sense of touch inasmuch as it perceives movements within the body or of the body, especially movements of the joints and the loosening and tautening of skin and body-structure which often accompanies such movements.

6. *The imagination or fancy* is the inner sense which is fitted to perceive, preserve, and reproduce in concrete image, the findings of the outer senses; it can also rearrange, reconstruct, exaggerate, minimize, cartoon, and commingle the images once formed upon external sensation. The organ of the imagination is in the brain; probably this organ is located in the outer part of the cerebrum, but its exact location in the brain-structure is not known. All inner senses have their respective organs in the brain, but the particular part of the brain to which each internal sense



should be organically ascribed is a matter of dispute among scientists. The student will please notice that the imagination is, first and foremost, a sense which retains and reproduces the images that come in from outer sensation. Only in its secondary function is it the faculty of poet and dreamer, which we ordinarily indicate by the name *imagination* or *fancy*. Nor can this faculty evoke any image except that which has somehow come from actually experienced sensation. Wild and extravagant as imagination may sometimes be, its most startling pictures are still the product of things once actually sensed. For while imagination can rearrange, reconstruct, exaggerate, minimize, expand, reduce, commingle, cartoon, and transform the sense-images and parts of sense-images once actually experienced in fact, it remains ever true that the *elements* of the imagination-images *have actually been experienced*. In a word, the imagination is not a *creating* faculty. In its first and fundamental service it is a *reproducing* faculty which faithfully records, retains, and, upon due stimulus, evokes, the images of things sensed. In its secondary service, the imagination may be called a *rearranging* faculty.

7. The sentient memory or sense-memory is the inner sense by which sensations once experienced, and now reproduced in imagination, are recognized as *once had*, as of *the actual past*. Sense-memory does not call up the past, nor does it reproduce images once

experienced; we have just seen that the sentient evoking and reproducing faculty is imagination. It is the proper function of sense-memory to *recognize* the past as reproduced in imagination. Imagination is stirred to the reproducing of images by experience (i. e., by sensation) identical or similar to that of the past, and by countless chains of relation and circumstance which constitute the marvellously complex "association" of recorded sensations. Imagination and sentient-memory work together; indeed, without imagination, sense-memory cannot function at all, and, without sentient memory, the service of imagination would be largely futile and illusory. But, despite their close connection and their interdependence, the imagination and the sentient memory are two distinct faculties, each with its own proper operation.

8. The central sense is the internal sense which perceives, distinguishes, unites, and divides the findings of the other senses. It is a kind of "central telephone operator." For the several senses are not reflective; they do not perceive their own operation, but directly lay hold of trans-subjective objects. But sentient knowledge supposes a consciousness back of perception, and this is furnished by the central sense. To illustrate this point. The eye does not see that it sees, nor is the ear aware of its own operation of hearing. Yet when we see a thing we are *sentiently* aware, not only of the object seen, but of the fact that we see it.

When we hear a concourse of sweet sounds, we are aware, not only of the sounds, but of our experience, our hearing, of the sounds. It is the central sense which operates to provide this awareness. Another name for the central sense is simply *sense-consciousness.* Still another name is the *common sense,* that is, the sense which is the common background, basis, and correlating power required by all the other senses.

9. The instinct or estimative power is the internal sense which apprehends externally sensed objects as *useful or harmful, desirable or undesirable.* This sense makes the cat avoid the dog, and the mouse avoid the cat; it stirs the bird to arrange and build its nest and to care for its young. In man many actions are "instinctive," but, since man has intellect, instinct is not developed in him, nor is it needed, in such degree as it is found in merely sentient creatures. The action of throwing out one's arm to break a fall, or of bracing oneself against a sudden strong wind, may be called instinctive, although some psychologists regard these actions as reflexes. A human parent, however timid, will often be found brave in the face of a serious danger which threatens his children, and this in an unreasoning *instinctive* manner.

d) THE SENSING PROCESS

We have discussed the physiological part of sensation; here we study the sensing process in its psychological aspect.

All sensing begins with the external senses. When an object falls within range and notice of a sense equipped to perceive it, it is said to be *impressed* upon the sense through the instrumentality of the sense-organ. Reacting to this impression the sentient organism is aware not only of the impression (indeed, not directly of the impression at all) but of the object, the trans-subjective reality, the external sensile being there actually present. To study the mode or manner of the sensing-process, it will be well to consider the progressive steps of the activity as these are exemplified in the operation of one definite sense. We choose the noblest of the external senses, which is that of *sight.*

Let us suppose that we ~~are~~ see a horse grazing in a grassy field. Under due conditions of light and distance, the normal vision cannot fail to see this object as soon as it falls under notice. If our view falls upon the grazing horse, we infallibly *see* it. And the process of our seeing is as follows. An *image* of the horse is impressed upon the retina of the eye. This is just such an image as would fall upon the film or plate of a camera set for making a picture of the horse. The image itself is the product of the object, light, the physical constitution and the chemical composition of the eye. It is a photo-chemical image. When such an image is impressed upon a camera-plate the picture

is "taken," the photographic process is done. But when such an image is impressed upon the retina of the eye, the seeing-process is just ready to begin. Here at once we notice the vast difference between "taking a picture" and exercising the sentient operation of seeing.

The impressed image,—considered now, not in its photo-chemical character but in its completed reality as a physical thing—stirs or excites the optic nerve and is taken into the organ of sight; it is now *the intra-organic object* of the operation of seeing. By the very fact of its being intra-organic, the object is *sensed;* it is *seen.* By and through the intra-organic object, the extra-organic object (the grazing horse itself) is seen. Thus what we see is, first and foremost, the intra-organic object, and this is the *medium* by which we see the extra-organic object which is the trans-subjective reality that comes to our sentient knowledge by the seeing-operation. Still, we are not aware of the intra-organic object as such; by its unobserved *mediation* (i. e., its office and service as a medium) we directly sense the extra-organic object, the trans-subjective object. Because the mediation of the intra-organic object is not sentiently observed, we say that this is a *wholy objective* mediation.

The intra-organic object is an *impressed species.* Here *species* means *image* or *likeness.* The intra-organic object is a likeness or image of the trans-subjective object, impressed upon the sense and

received within the sense-organ. The intra-organic object is also called an *intentional* image to indicate that this species or likeness is formed according to the *intent,* that is, the *connatural tendency,* of the knowing-power, the faculty, which forms it. The word *intentional* has, in this instance, nothing to do with the ordinary meaning of *intention* or *purpose,* except in so far as the term may suggest the intention and purpose of the Creator in framing our senses and their organs.

Summing up our findings thus far made, we understand that external sensation begins with an *impression* made by an external trans-subjective object upon a sensory or sense-organ. The sensory takes in the impression by reacting to it, and the impression thus taken in is now *the impressed species* or *the intentional image* of the object. The impressed species *is* the object taken into the organ (as intra-organic object). And the reaction of the sensing-power or sense-faculty to the intra-organic object is the *operation of sensing* whereby the trans-subjective reality (the extra-organic object) is sentiently *known.* We know the objects of the external senses through the entirely objective mediation of the intra-organic object.

The extra-organic object of the external senses is said to be *trans-subjective.* The term means that the extra-organic object is something which is really *there* in the world of knowable realities, and that the knowledge of it in the sentient subject is not

something "made up," not a figment of the knowing-power itself. Some philosophers use the term "objective" to express the factual quality in the extra-organic object of sensation, but this term in not so accurate as *trans-subjective*. For the sensile object has its *physical* existence as a thing that does not depend upon the sentient knowledge of any creature; it exists whether it is sentiently known or not. Yet it is such a thing as may come across or over (Latin, *trans*) to the subjective world and take on a new existence,—a *cognitional* existence, a knowledge-existence,—in the sentient *subject*. The trans-subjective world is the world of knowable realities which do not depend upon the knowing-creature for *existence in fact* but only for *existence in knowledge;* not for *being* but for *being known*. The grazing horse exists in fact, whether seen or unseen by any creature; its physical existence in no wise depends upon, or is affected by, its being sentiently known. But for the horse to have cognitional existence,—existence in the knowledge of one who sees it or otherwise sentiently knows it,—it must be actually sensed; such existence actually does depend upon the operation of sensing. Therefore, the horse in its physical existence is, as an object of sense-knowledge, a reality that is non-subjective; it is independent of the knowing-subject. Yet it is a *knowable* object: it can, so to speak, come over or across (*trans*) the chasm which separates the non-subjective from the subjective realm, and take on a new (cognitional) existence in the knowledge of the creature that sentiently knows it. Thus it is accurately said to be *trans-subjective*.

All objects of sense must be trans-subjective. Now, there are three points upon which trans-subjectivity stands. These are called *matter, form,* and *presence*. An object is trans-subjective in *matter,* or in content, when it is knowable as the precise reality that it is in fact; that is, when the knowledge of it in the knower is knowledge of *that thing, that reality,* and not some figment of the knower's own making. Every direct object of knowledge (of intellect as well as of sense) must be trans-subjective *in matter*. Secondly, an object of knowledge is said to be trans-subjective in *form,* or in mode or manner, when its cognitional existence corresponds in mode to its physical or real existence among knowables. When I see the horse grazing, I see an individual, concrete object, and the sense of sight gives me knowledge of it in a species or image that is also individual and concrete; the physical existence of the object is marked by individuality and concreteness, and so also is its cognitional existence: therefore, the object so known is trans-subjective *in form*. We shall presently see that the objects of intellect, while trans-subjective *in matter,* are not trans-subjective *in form,* for the intellect knows things in the abstract and in universal, whereas the things known have existence in individuality and concreteness. Thirdly, an object of knowl-

edge is said to be trans-subjective in *presence* when it is actually *there* for the grasp of the knowing-power, and is not merely evoked in image. Intellect and the inner senses of imagination and sentient memory can evoke or view their objects when these are no longer present; but the external senses cannot do so. We may think of a horse, or imagine a horse, or sentiently recognize the recalled image of a horse once seen, even when the horse is not present to the actual here-and-now grasp of the eye or other external sense-organ. But the external senses require an object that is trans-subjective *in presence* as well as *in matter* and *in form*. The external sense-object must be trans-subjective on all three points. For the inner senses of imagination and memory, the object must be trans-subjective *in matter* and *in form*. For intellect, the object of direct knowledge must be trans-subjective *in matter*.

The process of external sensing may be summed up thus: trans-subjective object (in matter, form, and presence) falls within range of activity of some suitable sense-organ under due conditions for its operation. The object is then *impressed* upon the sense-organ, becomes intra-organic, and is so *impressed upon the sense itself*, and is *sensed* or *sentiently known*. The species or image which comes through the organ to become intra-organic and thus to arouse sense-knowledge is an *impressed species;* and the reaction of sense to the impression of this species is the

knowing-grasp of the actual physical object there present. Now, in internal sensation (notably that of imagination and sentient memory) the object must be trans-subjective but need not be so in point of *presence;* we can image an object or recognize an image of past experience, when the reality imaged or recognized is now no longer present to us in physical, external, trans-subjective fact. But the object, to be known at all, must somehow be set before the knowing power. Imagination calls up or evokes its image, and, so to speak, projects it upon a screen for its own contemplation or for the recognizing-activity of memory. This projected image is said to be *expressed* by the knowing-power, and is called the *expressed species*. The external senses have no expressed species, but terminate their knowing-operation by grasping the object actually *present* in its physical existence. The inner senses know their object (or can know it) in its absence, but only by evoking or projecting its species or image; thus the inner senses terminate their operation by laying hold of an *expressed species*,—a species expressed within the knowing-power itself, but not a figment of that power, at least in its essential elements.

The species (impressed and expressed) which we have been discussing are *sensible* or *sensile* species. Presently we shall study the operation of the intellect, and we shall then find that there are species of a higher order, namely, *intelligible* species, both *impressed* and

expressed. We shall learn that the idea or concept of the mind is *an expressed intelligible species.*

We shall complete our study of the sensing-process by determining where sensation takes place. The center of sentient life (in man and the higher animals) is the cerebro-spinal axis. Impressions from sense-objects are carried from sense-organs to this center, and sensing or sensation results. Now, just *where* does sensation take place—in the brain (or somewhere in the central axis) or in the sense-organ? When I touch a hot object with a finger-tip, is the sensation of heat experienced in the brain or in the finger-tip? We answer that sensation takes place in the organ. The sense-organs are marvellously well constructed for their purpose of sensing, and nature would surely have acted to no purpose in arranging such amazingly balanced and complex parts of the body if the organ were merely to serve as a kind of "push button" for signalling the brain to go into action and do the sensing. The brain (central axis) is required, of course; it is the central station and the "exchange." But it is a fact that the actual sensing,—as most scientists now admit,—is done by and in the organs fitted for such operation. External sensation, therefore, takes place, first and foremost, not in the brain, but in the organs of the body. We may borrow an analogy,—admittedly every imperfect,—from the electric light. The lamp on my study-table shows its brightness *here.* A

power-plant is, of course, required, and if it did not send electrical impulses along the lengthy wires which connect my house with the dynamo, I should not have the light. But the fact that the electrical power required to make light must come from the dynamo does not alter the further fact that the actual illumination exists *here* in a specially constructed bulb suited to receive the electrical impulses in a way that will produce illumination. Somewhat similarly, the fact that the brain and cerebro-spinal axis are necessary for sensation does not alter the other fact that external sensing is done in the organ fitted for such special operation, and not in the "central plant" itself. The manifest weakness of this analogy lies in its suggestion that all the activity considered comes from within,—from the "dynamo." In sensing, there is another essential element in the process, namely, the trans-subjective object which is of a nature suitable to give a true impulse and impression to and through the organ of sense.

SUMMARY OF THE ARTICLE

In this Article we have defined *sensation* and have studied its nature. We have contrasted *sensation* and *perception* as two phases of one reality. We have defined the *object* of sense, and have distinguished object *per se* and *per accidens,* and have listed the *per se* objects as *common* and *proper.* We have made a detailed study of the physiological structure and function

of *the sensing-system,* (cerebro-spinal axis, cerebro-spinal nerves, external sense-organs). We have studied *the senses* severally, describing their *action,* their *organs,* and their respective *proper objects.* We have made a psychological study of *the sensing-process,* and have discovered that the object of sense must be *trans-subjective.* We have described and defined the *species* (impressed and expressed) involved in external and internal sensation. Finally, we have discussed the *locus* of external sense-experience.

Article 3. Appetition

a) Nature of Appetition b) The Appetencies or Passions

a) Nature of Appetition

Appetition, appetency, or simply *appetite* is the organic faculty of tending towards what the senses present as desirable, and of tending away from what the senses present as undesirable. It is the organic or sentient faculty for going after what is sensed as *good.* This brief description is adequate, for it is obvious that one tends to go after good not only when the tendency is towards a positively desirable reality but also when the tendency is away from an undesirable one; for it is *good* to avoid evil.

Every creature, lifeless and living, tends towards what suits it. This tendency is called *natural* appetency or appetite. But we speak here of sentient beings and specifically of man, and of that tendency *which is the result of sense-knowledge.* This sort of appetency is called *sentient* appetency or appetite; its exercise is the act of *appetizing;* the faculty or power for its exercise is *appetition.*

b) The Appetencies or Passions

We make a distinction between *concupiscible* appetency and *irascible* appetency. It is more usual to speak of these appetencies or appetites as the concupiscible and the irascible *passions.* There is no dishonorable note in our present use of the term *passion.* Literally, a *passion* is "an undergoing, an experiencing," for the term *passion* comes from the Latin participle *passus* which means "having suffered, having undergone." The word *patient* as a noun, meaning one who undergoes treatment, and the fine noun *patience* which (with its adjective *patient*) indicates the noble virtue that quietly and bravely supports trials and sufferings, comes from the present participle of the same verb. A sentient being *undergoes* something, *suffers* something (not in the sense of pain) when it experiences the tendency called appetency. Hence the several expressions of the sentient faculty of appetition are rightly called *passions.*

We classify the passions as *concupiscible* and *irascible.* The term *concupiscible* comes from a Latin verb (*concupiscere*) which means to have a strong *desire.* The word *irascible* is from the Latin *irasci,* "to be irritated or angry," and applies to the passions inas-

much as their tendency meets *difficulty* (which naturally arouses irritation) in attaining the object of desire. The concupiscible passions tend simply to lay hold of what the senses present as desirable, as "good to have," and to ward off or keep away from what the senses present as "good to avoid." The irascible passions are appetites aroused by a qualified object, an object with the note of *difficulty* attached to it; they tend to lay hold of what the senses present as desirable but difficult (or even impossible) to attain, and to keep away from what the senses present as undesirable but difficult (or impossible) to avoid. We might handily classify the concupiscible and irascible passions respectively as the passions *of desire* and the passions *of difficulty*. Before listing the several passions we must pause for an important remark.

The tendency of every creature is towards *good*. The tendency called appetency or sentient appetite is, therefore, always good in itself, and is always a striving towards what is good in itself. In man,—whose nature has been corrupted by the Fall,—the passions may lead to abuse and great evil. But this fact is due to the derangement of man's nature by original sin, and the consequent breaking away of the natural tendencies from the control of reason under which they were meant to function. They are like wild horses which a perverse will may allow to run away and to cause wreck and ruin. But the horses were not always

wild, and the driver not always weak and perverse. Even now, the driver can take light and strength from God's grace and so can control the restive steeds which carry him through the whole course of sentient life. The tendency of man's sentient appetites, and of his rational appetite (which we call *will*) is towards *good*, but man's perversity and precipitateness of judgment may, and sometimes does, result in *an inordinate use* of sentient good or *a perverse choice* of objects in which the will seeks good. In other words, a man's tendency towards good may actually result in the attainment of evil because of blindness and perversity in judgment. Thus sin is a possibility, and a lamentable fact. The sinner (one who uses the objects of sentient tendency inordinately and is perverse in rational judgment) may be likened to a motorist who really does desire to go home, but who is so eager to be on the move and so blindly impatient of pausing to inquire out the way, that he drives off furiously in an utterly wrong direction.

The concupiscible passions, or passions of simple *desire,* are the following:

1. *Love* and *hatred or detestation.* Love is the inclination towards good, apprehended simply as such. No note of time is in it, or of possibility, impossibility, difficulty, likelihood, or condition. In other words, love is the simple tendency towards good to embrace

and possess it, without consideration as to whether the good is to be attained here and now, or later, or whether it is possible to attain, or likely to be attained, or attainable with difficulty, or attainable on fulfillment of some condition. Hatred or detestation is the simple opposite of love: it is the tending away from what is apprehended as evil.

2. *Desire* and *abhorrence.* Desire is the tendency towards good apprehended as a future possibility. Abhorrence (sometimes called *aversion*) is the shrinking back from an evil apprehended, not as present, but as to come.

3. *Joy* and *sadness.* Joy is the tendency to rest complacent in the present possession of good. When this complacency is experienced on one's own account, it is called *enjoyment* or *delectation;* when it is pleasure in the success of another person who has achieved good, it is called *delight* or *rejoicing.* Sadness is the tendency to disquiet under the weight of a present evil. Sensed inwardly, it is *sadness* or *sorrow;* sensed outwardly, it is *pain.* For oneself, it is *sadness* or *sorrow;* for another, it is *grief* or *commiseration.*

The irascible passions, or passions involving *difficulty,* are the following:

1. *Hope* and *despair.* Hope is the tendency towards a good apprehended as difficult, but not impossible to achieve. Despair is the falling back, the "giving up," in face of a good apprehended as unachievable or an

evil apprehended as unavoidable. Hope which is almost ready to die and become despair is called *desperation.* Desperation is hope in the violence of its death-struggle.

2. *Courage* and *fear.* Courage or *daring* is the tendency to face and war down evils which block the attainment of desired good. Fear or *timidity* is the tendency to shrink back in agitation when the obstructing evil is apprehended as very difficult to overcome or even well nigh insuperable.

3. *Anger* (*ire, wrath, rage, indignation*). Anger is the strong tendency to violent action in order to fight off an evil or to punish him who inflicts it.

We have seen that all the passions are, in themselves, tendencies towards good. And since the simple tendency to good is *love,* all the passions are somehow expressions or variants of love. Hatred is, so to speak, the "under side" of love, or it may be called "the other leg" on which love stands. For there cannot be love of one thing without hatred of its contradictory, just as there cannot be a step towards the north without a step away from the south. Love and hatred go thus together. And all the other passions are easily expressed in terms of love and hatred. Desire is the love of good to come; abhorrence is the hatred of future evil. Joy is the love of possessed good; sadness is the hatred of a present burden of evil. Hope is the love of a good difficult to attain; despair is the hatred of

an evil impossible to avoid. Courage is the hatred of a superable evil and the love of that which the evil blocks off or balks; fear is the shrinking hatred of an evil weakly deemed insuperable. Anger is the violent hatred of a present and oppressive evil.

We have said that the faculty of sentient appetition is an *organic* faculty. If this is so, the faculty has its organ. Where, then, is the organ of appetition? Some psychologists say that *the heart* is the organ in question. Others declare that this organ is an area,—not accurately localized by scientists,—of *the brain*. The second opinion is the right one. The heart is, indeed, instantly *affected* by appetition, and the common speech of men recognizes this fact. So we say that one has a loving heart, or has hatred in the heart, or that something is the heart's desire, or that despair gripped one's heart, or that joy surged in one's heart. So we speak of a hopeful heart, a courageous heart, a heart filled with rage. But, after all, the heart is a muscle, not a sensory structure. The heart is well suited to *show* the "affection," the influence of "that which is done to" the sentient organism, but not to *exercise* the appetency itself. It seems correct to say that the organ of appetition is the brain, or, more accurately, part of the brain, and that the organ which *manifests* appetition,—which shows its effect on the organism,—is, first and foremost, the heart.

SUMMARY OF THE ARTICLE

In this short Article we have defined *sentient appetition* and have distinguished it from the *natural appetency of all creatures*. We have classified the sentient appetencies or *passions* as *concupiscible* (love-hatred; desire-abhorrence; joy-sadness) and *irascible* (hope-despair; courage-fear; anger). We have seen that the passions are good in themselves, and lead to evil only when inordinately used or engaged upon wrong objects under the influence of perverse will. We have learned that all the passions are rooted in *love*. We have found that the organ which exercises appetition is *the brain*, and the organ which first manifests it is *the heart*.

Article 4. Locomotion

a) Definition of *Locomotion* b) Nature and Organ of Locomotion

a) Definition of *Locomotion*

Locomotion is the power to move locally by reason of an immanently active principle; it is an organic faculty exercised by the sentient organism in moving from place to place.

The faculty of locomotion is the immediate and proximate principle of spontaneous local movement in animals and human beings. It is something really distinct from appetition, for it is the faculty *for going after* what appetition *tends* towards. Appetition

may be said to "issue orders"; locomotion tends to "execute the orders."

Every sentient organism has the faculty of locomotion *in some degree,* and the higher (or more complex) animal organisms all possess it completely.

b) NATURE AND ORGAN OF LOCOMOTION

The movement exercised by the locomotive power or faculty is, properly speaking, *spontaneous* movement. That is to say, it is local movement *consequent upon knowledge.* Living bodies, even sentient living bodies, manifest other types of movement. Thus there is the *automatic* movement of heart and lungs, which requires no sensed stimulus from without, no sensed prod to action. There is *reflex* movement which is the muscular reaction to a stimulus imparted exteriorly to the nerves; *reflexes,* as such movements are called, may take place with or without the knowledge of the sentient being which experiences them, but when they are recognized or known, the knowledge is never their cause. In *spontaneous* movement, however, we have movement consequent upon appetency, which, in turn, is awakened by knowledge of an object as good to be attained. The knowledge which stirs the organism to appetition and local movement is, in men and brutes collectively, *sense-knowledge.* In man, the knowledge which arouses appetency and movement may be also a purely intellectual knowledge. Nor does human knowledge necessarily lead to local movement to achieve what is sentiently known as desirable or good to have. Man has absolute control of the larger bodily movements as long as he is physically and mentally sound, as long as reason is not dethroned by insane fear or anger or other passion. A man can stand to his duty, come what may. He cannot directly control the beating of an excited heart, or chattering teeth, or trembling hands, or quaking knees. But as long as he has the use of reason and ordinary bodily strength for normal action, he can face danger or even move into it, despite the fact that all sentient or bodily appetite is pulling him the other way. In such a case, man's intellectual knowledge and recognition of duty or proper conduct is the knowledge that stirs appetency, and the appetency that prevails is called *the free-will.* Thus man is not the slave of bodily appetites, nor is he constrained to that local movement for which bodily appetites express a tendency or drive. A famous example of all this is found in the sentinels of Herculaneum and Pompeii who stood at the post of duty,—although every sentient impulse must have urged them to run to safety,—while molten lava surged down upon them and burned out their lives. The glorious Christian martyrs, soldiers fighting in battle, and even a tired laborer carrying on the prosaic routine of his work, are further examples of the superior control exercised by rational appetency (the will) over sentient appetency as a source and cause of local movement.

The organ of the faculty of locomotion is the muscle-and-bone structure of the organism. For while local movement in an organism is *consequent upon knowledge,* the movement itself is not a *knowing*-activity, as sensation is essentially, and appetition is virtually. Sensation is knowing; appetition is, in some manner, an appreciation of the thing known, for it is the tendency to act upon knowledge. But movement, *in itself,* involves no knowledge. It is *executed* by the sentient organism by means of muscular activity which sets the framework or bone-structure of the organism in motion. Hence we say that the organ of locomotion is the muscle-and-bone structure of the body. We call locomotion a sentient faculty because it belongs to the sentient order of life-activities; it is not sentiency itself, but it is associated with, and consequent upon sentiency or sense-knowledge.

SUMMARY OF THE ARTICLE

In this very brief Article we have defined *locomotion,* the third operation of the sentient order. We have discussed the nature of this faculty, and have seen that it is consequent, in its exercise, upon knowledge, and for this reason we have declared it to be a faculty for *spontaneous* local movement. We have discussed the organ used by the locomotive faculty, and have discerned the reason for naming locomotion a *sentient* faculty.

CHAPTER III

THE INTELLECT

The present Chapter discusses the existence, nature, operation, and object of the human *mind, intellect, or understanding.* It explains the origin and the expression of *ideas* or *concepts* which are the elements of all intellectual activity. The Chapter is divided into the following Articles:

Article 1. Nature and Actuality of the Intellect
Article 2. Operation and Object of the Intellect
Article 3. Origin and Expression of Ideas

Article 1. Nature and Actuality of the Intellect

a) Meaning of *Intellect* b) Existence of Intellect

a) MEANING OF *INTELLECT*

The word intellect is from the Latin *intus* "within; inwardly," and *legere* "to read." The name indicates a faculty or power for getting at the inner meaning of things. Intellect is a faculty for delving beneath appearances and laying hold of *essences.* It is a knowing-power or *cognitive faculty* which pierces through the accidentals presented to knowledge by the senses, and grasps the essential reality which is clothed, so to speak, in these accidental trappings.

Intellect may be defined as *the supra-organic faculty which knows things in an essential and non-material way.* To explain this definition:

1. *Intellect is a faculty.* That is to say, it is a capacity or power for vital activity. Further, it is a *knowing* or *cognitive* faculty, a power for knowing.

2. *The intellect is a supra-organic faculty.* In other words, it is a *supra-sentient* or *spiritual* faculty. It is a faculty of man, but it belongs to man's spiritual soul. It is not a bodily faculty like the senses; it has no organ to use as the instrument of its operation. The brain is not the organ of the intellect. The brain is the organ of the interior senses (central sense, sentient memory, imagination, instinct) and it is also the central seat of the exterior senses (sight, hearing, smell, taste, touch). Thus sensation,—that is, the action and the fruit of sense-operation,—is focussed, so to speak, in the brain. From the findings of the sense, thus focussed, the intellect works out its *ideas.* Once it has ideas, the intellect goes on to perform its operations of *judging* and *reasoning.* Thus we find the beginnings of intellectual activity in the action of the intellect upon sense-findings, and we say, "There is nothing in the mind or intellect that has not some ground and beginning in the findings of the senses." And since the findings of the senses are centralized or focussed in the brain, the intellect may be said to begin its work there. So we come to speak of thoughts as "brain children"; and we say that a man "uses his head" in thinking, and that a person of keen intellect is "brainy." But we must take care not to be misled by these loose expressions into the erroneous opinion that the brain is the organ of the mind or intellect. For the intellectual operations are simply beyond the capacity of any bodily organ. *The intellect has no organ.* It is *supra-organic.* For man, by his *intellect* (*mind, understanding*), knows things which have no materiality about them, things such as spirit, soul, God, angel; things such as honesty, goodness, unity, truth, beauty, virtue, heroism, honor, etc. Now, a faculty which is essentially dependent upon an organ, upon a specially constructed bodily part suited for one specific kind of vital action, has no capacity for apprehending such things as those enumerated. An organ or bodily part can grasp only bodily things. But the intellect grasps things which are entirely non-bodily, and it grasps even bodily things in a non-bodily way, as, for example, it understands solidity or size in general. Therefore the intellect is not essentially dependent upon an organ or bodily part; it is non-organic; *it has no organ.* It is quite true that in this present life in which soul-and-body constitute man as a living bodily creature, man is dependent upon the senses and their organs to give him the grounds and beginning of all the knowledge that it is possible for him here to possess. In this sense, and in this sense

only, the intellect,—which is a soul-faculty, as we shall see in a moment,—may be said to depend upon the senses and their organs. But this is a dependence that is extrinsic to the intellect itself. *In itself* the intellect requires no organ for its function; in itself and for itself the intellect possesses no organ. The intellect, we repeat, is non-organic. Presently we shall discuss the operation of the intellect, and we shall see (as indeed we have already seen) that the intellect is not only *non*-organic, but *supra*-organic: for its action is of a higher and more wondrous character than organic action. One further point: the intellect, being non-organic, is in no sense a body-faculty, for the faculties proper to the living body as such are necessarily organic faculties. But there are no human faculties except faculties of the living body, and faculties proper to the soul. The intellect is therefore a faculty proper to the soul. Now, the soul is spiritual, and is served by faculties proper to its own essential character. Hence we rightly say that the human intellect is *a spiritual faculty*. The intellect is not a spiritual substance, of course, for faculties are powers resident in substance; they are not substances themselves, nor are they, in any creature, identified with the substance which possesses them; in themselves they are accidents, not substances. Hence when we call the soul *a spiritual faculty* we mean that it is a power or capacity possessed and exercised by the spiritual substance called the soul.

3. The intellect is a faculty for knowing things in a non-material way. All knowledge, even that of the senses, is rooted and based in "non-materiality." There is a vast difference between the mutual contact of bodily things,—such, for instance, as that of wax and a signet,—and the contact of a sense with its object. Contact between two bodily things involves the physical impinging of one on the other, a striking together, a union and joining, at least momentarily, at the point of contact. But a sense lays hold of its object while leaving it where it is, in its objective otherness. To bring wax and signet together is to produce a third thing (a *tertium quid*) which is not merely wax nor merely seal, but figured wax. To *see* an object, however, is not to produce a *tertium quid*. One sees the object as the object; the seeing-faculty is not configured to the object physically as wax is configured to the shape of the seal; there is no resultant figured vision. Even the sense of touch, in its perception of resistance as it apprehends a solid body, is not shaped or figured; the bodily member which comes in contact with the solid is shaped and figured (as the finger-tip would be if pressed firmly on the signet), but the faculty or *sense* of touch is not figured. The *organ* of touch is indeed physically impressed but the *sense* of touch is in no wise "shaped" and configured to the physical impression. The sense of touch *perceives* the object, *knows* it, is *aware* of it. In a word, the senses, even that of touch, know their

objects in a trans-subjective manner; the senses leave objects "in their objective otherness" and do not join them physically to themselves. The union of bodies in contact is composite joining; the union of sense with its object is objective knowing. Thus the senses are not subject to the limitations which mark non-sentient bodies in physical contact; in so far the senses are removed from the limitations of "materiality"; and this is what we mean by saying that all knowledge, even that of the senses, is rooted in "non-materiality." Now, if the senses be essentially non-material in their operation,—which is the apprehending of material things with all the limitations that attach to concreteness and individuality,—it is at once apparent that the intellect is, by a far greater reason, non-material, for the intellect is capable of laying hold of things which are not material and of grasping material things in an abstract and universal way far superior to the mode of operation which characterizes the senses. This point receives clarification in the paragraph which immediately follows.

4. The intellect is a faculty for knowing things in an essential way. By the senses I know the sensiles that fall within their range here and now, as concrete and individual objects. If I look at a tree, for example, I see *this* one tree, or if I look at a copse or stretch of forest, I see *these* trees. But by my intellect I know what *tree* means,—not just *this* tree or *these* trees,

but *tree* in general, *tree as such;* I know what *a* tree means,—*any* tree, *every possible* tree. That is to say, I know the *essence* of tree; I know what makes a tree a tree. Thus we discover that the non-materiality of intellectual knowledge is of a much higher and more striking kind than that of sense-knowledge. Notice that the intellectual knowledge is not only higher *in degree* than that of the senses; it is a specifically different and superior *kind* of knowledge. This is a most important point to ponder and comprehend; nearly all the errors that have confused philosophers in their studies of the mind and its functions and the value of knowledge, have come from a failure to grasp clearly the essential difference between *sensation* (sense-knowledge) and *intellection* (intellectual knowledge).

The intellect is called by a variety of names according to its various uses. It is *one* faculty but has a plurality of names for a plurality of functions. Somewhat similarly, one has a single pair of feet, which perform various actions,—walking, running, skipping, dancing, kicking, etc. We here briefly examine the implications of the names most commonly used for the various functions of intellect.

1. The mind. This is the Latin *mens,* the Greek *nous.* In our use of the term, it is perfectly synonymous with *intellect.* Many modern writers use the term *mind* in a wide sense, applying it to all conscious life. Such writers speak of the mind of animals; we

do not. We keep the word within the strict and ancient limits which make it one in meaning with *intellect*.

2. Intelligence. This is intellect inasmuch as it recognizes self-evident truths and makes immediate inferences. Here again casual usage extends the term, and we hear people speak of "intelligent" animals,—dogs, horses, cats, parrots. But non-human animals are never intelligent. They may be very alert and wondrously responsive in sentient activity, but they cannot be intelligent because they cannot be intellectual. As we have proved in another place, brutes have sentiency but they lack intelligence.

3. Reason. This is intellect inasmuch as it works out and recognizes truths that are not self-evident. By *intelligence* I know that a totality is greater than any of its parts; but I must use *reason* to "figure out" the knowledge that the sum of the angles of any triangle is equal to 180°. The relation of "part" to "whole" is a self-evident relation; one needs but to know what the terms mean to understand that the whole is greater than its part, and that this cannot be otherwise. But the truth about the sum of the angles of a triangle is not self-evident, as any harassed young pupil in elementary geometry will testify; it has to be worked out, studied out, by successive and connected steps of *reasoning*. Intelligence understands "right off"; reason understands by studious effort, linking truth to truth to reach its conclusion.

4. Understanding. This is another simple synonym

for *intellect* or *mind*. Often, in casual speech, the term is used to indicate, not the faculty of intellect, but the objective grasp of meaning achieved or achievable by the intellect. Thus a person may say, "Let me explain the matter; let me give you a clearer understanding of it." But we use the term here as a synonym for *intellect*.

5. Consciousness (that is, *intellectual* consciousness). This is the mind or intellect inasmuch as it is aware of itself, of its states, of its operations. There is a *sentient* consciousness which animals (brutes and men) possess; it is the awareness of sense-activity and of sense-objects proper to sentient life; we call it *the common sense* or *the central sense,* and list it as one of the four interior senses. When a man (or a brute animal) sees an object, he is sentiently aware that he sees. This awareness is not from vision, for the eye does not see itself seeing; it is from *sentient consciousness.*—The consciousness of which we speak in the present study is an awareness of *meaning,* and indeed of *essential* meaning. A boy and his dog may see a pictured triangle or a line of written words; both are sentiently conscious of what falls under the grasp of vision. But only the boy, and not his dog, knows that the picture is *a triangle* (or *can* know it); only the boy, and not the dog, can know the meaning of the written words; the boy can know these things and *be aware* that he knows them. The awareness of intellectual knowledge is intellectual consciousness. And

intellectual consciousness extends, in a manner, to include even the objects of sentient consciousness, but in a superior way. The boy and his dog may both enjoy a run across fields; both have sentient consciousness of enjoyable experience; but the boy alone, and not the dog, can have also a reflective mental (i. e., intellectual) consciousness of the enjoyment as such.—Intellect, inasmuch as it is *an awareness that one understands an object or situation,* whether this be in itself a sentient or a purely intellectual reality, is called *intellectual consciousness.* Thus a man may be conscious of a duty, of a meaning in words, signs, events; of appreciation of beauty, heroism, etc., and, in these instances, his consciousness is intellectual; it is an activity of his *intellect;* it *is* his intellect in a special function.

6. Conscience. This is intellect inasmuch as it *reasons out the moral implications of a situation* and renders judgment upon them. Conscience is the intellectual consciousness or reasoned awareness of right or wrong in a situation here and now to be judged. Conscience is no sentiment, no "still small voice" within the heart, no "little spark of celestial fire," no "sense of fitness in things," no "sense of values." All these phrases suggest something *sentient,* and, indeed, *blindly* sentient. But conscience is not a sense. It is the same cold reason with which we work out a problem in mathematics,—only, to be entitled to the name *conscience,* it must be engaged upon issues

of right and wrong, good and bad, and not upon mathematical quantities. The judgment of conscience is always a *reasoned* judgment. When a person has passed the stage of infancy he comes to understand (not reflexly at first, but directly) that there is an order in things, an order that must be conserved and not upset. The child begins to realize, for instance, that parents must be obeyed, quite apart from the question of punishment for disobedience. So the child comes to understand that there is something bad in a lie, or in a theft, quite apart from the possibility of being found out. Education or instruction helps the child to come readily to the realization of good to be done and evil to be avoided, but the realization is, after all, a *reasoned* realization, and, in a normal person, would be ultimately reached even in the absence of any instruction bearing directly upon the point. In every situation where obvious moral issues are involved even a child of seven will make a reasoned judgment about the course of duty, whether he actually follows that course or its opposite. What is true of the child is more manifestly true of the adult. Now, the judgment of reason that something *here and now to be decided upon* is *good* and *to be done* (or at least *permitted*) or *evil* and *to be avoided,* is called *conscience.* As a faculty, therefore, conscience is one with reason, and reason is one with intellect. *Conscience* is intellect in a special function or service.

7. Memory (that is, *intellectual* memory). This is

the intellect inasmuch as it retains and recalls and *recognizes as of the past* the things it has once understood, the past states and operations of mind and will, and the sentient experiences of the past. By intellectual memory a person recalls what has once been learned,—not, indeed, everything that has been once learned, nor perfectly in every instance of recollection, for the intellect is a limited faculty and may grasp a thing imperfectly or ineptly and later forget it. By this memory a person also remembers the past states, conditions, opinions, convictions, of the intellect itself, and the acts and decisions of the will. Further, intellectual memory recalls and recognizes *understandingly* the sentient experiences of the past, or many of them. Man has a senient memory, as we have seen, and it is operative to *recognize* sense-images recalled to imagination. In man, intellectual memory and sentient memory concur, with greater or lesser perfection, and intellect (as *memory*) regularly reads meanings into past sentient experiences re-depicted in imagination and recognized by sense-memory.—Intellect is a faculty capable of education and training, and it is strikingly so as *memory*. The best means of acquiring a "good memory" is to be found in careful attention, close study, orderly procedure, the enlisting of sentiently-grasped circumstances as an aid to understanding and remembrance. Nearly all the methods of "memory training" have as their fundamental prescription the forming of

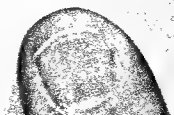
vivid images in imagination of objects to be remembered, together with a piercingly close attention of sense and mind to these objects when first experienced. Thus imagination can be of great service to intellectual memory; it forms clear points of "association" which stir the intellectual memory to recall the past; conversely, a clear intellect is a splendid aid to sentient memory, and to imagination which holds its images.—But the point we make here is this: intellectual memory is the *intellect* in a special function.

b) EXISTENCE OF INTELLECT

We have learned what is meant by *intellect*. Now the question arises, does man actually possess this faculty which we have defined and described?

We must recognize the actual existence of the special supra-organic faculty called *intellect* if man has knowledge which is essentially beyond the grasp of the senses. Now, as a fact, man *has* such knowledge. Therefore, the faculty necessary for such knowledge,—that is, the intellect,—actually exists.

Many a psychologist is content to befog his view of human knowing, and to suppose, without adequate analysis of the facts in the case, that all our cognition is a matter of nerves and muscles and organs. In criticism of this unscientific position and postulate, it will be sufficient to indicate, in the briefest manner, some points of truth, already discussed in our study, about the nature of intellectual knowledge. We need



only to show that man has, as a fact, knowledge that is essentially outside the reach of the senses.

A sense is a power for grasping (i. e., for apprehending or knowing) individual and material objects. By the sense of sight, I know those colored objects which here and now lie within range of my vision, under due conditions of light, size, vividness, and distance. Suppose I look upon a grassy hill. I see this hill, but not the thousands of other hills which lie beyond the very narrow limits of my present angle of vision. But I *know* those other hills, although I do not now see them, and may never have seen them or be destined to see them in time to come. I know *what they are.* For I know what *hill* is; I know what the term means, I know what the actuality must be in its essence. I do not know how many hills there are (although I expect momentarily to have some newspaper statistician report the number for me), nor how high they are, nor how steep or rugged. But I know them as *hills,* for I know what *hill as such* is. In a word, I have a knowledge of *hill* which leaves out of account the individual marks and material conditions of this or that or these particular hills; this knowledge of *hill* is at once abstract and universal. It is *abstract* because it abstracts from, prescinds from, neglects to consider as of fundamental import, the marks and material circumstances which make each hill recognizable as *this* hill, and focusses upon that which

makes each hill *a* hill. And this knowledge is *universal* because that which it represents is one thing (*unum*) —for what makes a hill a hill is precisely the same in each and every case, no matter how hills differ individually in height, ruggedness, location, etc.,—and this one thing stands in the mind as representatively related (*versus*) to the realities in nature which we know as individual hills (*alia*). From the terms *unum-versus-alia* (one thing considered as "over against" others; one mental grasp as representatively apprehending things other than itself) comes the term *universal.* The common, casual meaning of *universal,* as all-inclusive, having no exceptions, is justified also in our present use of the term. For intellectual knowledge of a reality embraces *every such reality;* intellectual knowledge of *hill,* for example, includes each and every hill,—actual and possible,—without exception. Now, knowledge that is abstract and universal is manifestly knowledge that is essentially beyond the grasp of any sense or group of senses. My senses do not, and cannnot, show me *hill,* but only *this* hill or *these* hills. The very marks and characteristics which make a hill the object of sensation are set aside by the mind, and left out of account, in the intellectual realization of *what a hill as such is.* Sense deals with the concrete, the individual, the accidentally circumstanced; but I am aware of knowledge within me that rises above these limits and takes hold on reality in a

manner that is abstract, universal, essential. I am inescapably aware of *intellectual* knowledge within me, and that means but one thing: I have an *intellect.*

The senses know only bodily things,—and these, as we have seen, in a concrete and individual way through the grasp of accidentals. Yet I have knowledge of things that are not bodily. I know what is meant by *spirit,* even if I am a rank Materialist and deny that such things as spirits exist. I know what is meant by *unity, goodness, truth, beauty, perfection, religion, devotion, virtue, vice, diligence, love, poetry, artistic "values," plans, careers, ambitions,* and hundreds of other realities which have no weight, measure, color, shape, or size. And, in addition to these things, I have, as we have noted, an abstract understanding of bodily things like *hill.* Further, I have an abstract and universal grasp of qualities which, while they characterize and limit bodies, have no independent existence, normally speaking, apart from bodies; yet I *understand* them apart from bodies; I know what they are *in themselves:* and thus I know, for example, what *whiteness* is, and *roundness,* and *height,* and *solidity,* and *movement.* It is manifest that no organ of sense can lay hold of any of these things; yet I certainly *know* them. I am driven to conclude that I have a supra-sensuous, a supra-organic faculty for knowing things. In other words, I possess *an intellect.*

Again: the senses do not and cannot know themselves or their operations. They are not reflective. The

eye does not see itself seeing, nor does the ear hear itself hearing. Sense-consciousness (the central or common sense) does indeed give one an awareness of the senses and their operations, but no sense senses *itself.* But the mind or intellect, being a spiritual faculty, is reflective; it has a *reflex* action by which it knows itself knowing, and can make itself and its states and operations the object of its own observation and study. Now, I am aware that I possess such reflex knowledge. Presently we shall take up the study of the "Operation of the Intellect," and we shall find nothing odd or unnatural in the thought of such a study; we shall quite calmly begin to study our study, to know our knowing. Manifestly no sense or group of senses is capable of such reflex action; their bodily limitation stands in the way of it; to conceive of reflective organic action would be to conceive something as absurd as the girl in Andersen's Fairy Tales who had the amazing ability "to walk under herself." Yet, as an indubitable fact, I have reflex knowledge. It follows that I have the supra-organic faculty for it. I possess *an intellect.* The intellect exists.

SUMMARY OF THE ARTICLE

This Article has taught us the meaning of *intellect,* the spiritual or supra-organic faculty by which man knows things, bodily and non-bodily, in an abstract and universal and essential manner. We have

learned the implications of the definition of intellect, and have contrasted intellectual knowledge and sentient knowledge. We have noticed the various names by which intellect is known in its various functions or services: *mind, intelligence, reason, understanding, consciousness, conscience, memory.* We have proved that man actually possesses an intellect.

Article 2. The Operation and Object of the Intellect

a) Operation of the Intellect b) Object of the Intellect

a) operation of the intellect

The first and basic operation of the human intellect is the activity called *simple apprehending* or simple knowing, and this consists in *the forming of concepts or ideas.* When we say "forming" we do not mean that the intellect "makes up" its elements of knowledge. On the contrary. We mean that the intellect is *operative* to take in *in its own way* (hence the word "forming") the understandable realities which constitute its object. In a somewhat similar way the senses may be said to "form" their knowledge,—not by creating it or projecting it ready-made out of themselves, but by *taking it in* in a manner consistent with their own nature, structure, and function. Thus sight may be said to "form" the sense-knowledge of visible objects by laying hold of the intra-organic visual image whereby it actually sees realities in the outer

trans-subjective world. It sees objects that are *there;* it brings them into itself as *seen objects.* But, manifestly, it does not transfer them, with body and bulk, into the organ of vision or into the sense of sight. It leaves them where they are and as they are ("in their objective otherness") and takes them in by image or similitude or *species,* in a manner consonant and consistent with its nature as a seeing-faculty. Thus also intellect takes in knowables in essential image or species suited to the nature and operation of a suprasentient knowing-power. Intellect knows in a manner indicated by the *intent of nature;* that is, it knows as the Creator has designed it for knowing; and for this reason we say that the intellect knows by forming *intentional images* or *intentional species* of things. In other words the intellect takes in reality *in its own way* and in so far "forms" reality within itself. Every receiver takes things in according to its own capacity and character: hence the Latin axiom, *Quidquid accipitur ad modum accipientis accipitur,* that is, "Whatever is taken in is received according to the capacity and character of the receiver." Now, the point we make is that while intellect takes in reality according to its own capacity and character (and in so far "forms" reality within itself), *it does actually take in reality* and does not produce knowledge out of itself as a figment divorced from reality.

The intellect "forms" or takes in reality. Now the full and complete activity of intellectually *knowing* is

not the simple *taking in,* but the *having* and possessing of knowledge fully formed. Therefore, we discern at once two clearly distinct phases of intellectual activity; and we have a special name for the intellect in either phase of this activity. We say that the intellect, inasmuch as it actively performs the operations necessary to make objects *intelligible* or *understandable* and to bring these in that it may possessively lay hold upon them, is *the active intellect* or *the agent intellect* or, in the Latin term by which this faculty is usually called, the *intellectus agens.* And the intellect, inasmuch as it receives, holds, and employs the knowledge which its activity brings to it, is *the passive intellect* or the *intellectus possibilis.* The term "passive" is not to be understood here as meaning lifeless passivity; it indicates a vital reaction on the part of the intellect to the impressed elements of supra-sensuous knowledge; it suggests the serene yet active possession of reality in fully formed intellectual concepts or ideas. The *intellectus agens* is the intellect inasmuch as it *gets* and *impresses* the elements of supra-sensuous knowledge; the *intellectus possibilis* is the intellect inasmuch as it *has* and can now *use* acquired supra-sensuous knowledge.

In discussing the operation of the intellect we have first to consider the forming of ideas or concepts by the action of the *intellectus agens* and the possessive re-action of the *intellectus possibilis.* This forming and having of ideas is called the activity of *simple*

apprehending; it is the first and fundamental operation of the intellect. The second operation is that in which the intellect inspects and compares ideas, notices identities and differences and relations, and judges or pronounces on the agreement or disagreement of the ideas: this operation is called *judging.* The third and last operation of the intellect is the working out of judgments which are not at once apparent upon the comparison of ideas; this operation is called *reasoning.* Thus there are three intellectual operations, to wit, *simple apprehending, judging, reasoning.* We study each operation very briefly.

1. *Simple Apprehending*—The senses perceive their respective objects as material, concrete, individual things; and, indeed, it is thus that these objects exist in nature. The sense-findings are retained and held "re-present" in the inner sense called imagination. Recall here that imagination is not the fancy of poet or story-teller; it is an interior sense which, as its first and basic function, faithfully records, represents, retains, and evokes the findings of the exterior senses.

The sense-findings, re-present in imagination with all their concrete individuality and material circumstance, are subjected to the action of the *intellectus agens* and so are rendered intelligible or understandable. This result is due to the fact that the *intellectus agens,* like a great X-ray, illumines the imaged sense-findings and strips away, or renders invisible, their

individuating marks and material conditions, and lays bare *the understandable essence as such.* This understandable essence is called *the intelligible species.* To illustrate all this: Suppose you have never seen or heard of the reality called triangle. Now you see several pictures of triangle drawn on a blackboard. No two of the pictures are alike in color or location or size; no two are of the same type of triangle (isosceles, scalene; right triangle, equilateral, etc.). Your sight lays hold of the pictures as sensile objects; you know then sentiently. The finding of sight is reflected, so to speak, inwardly to the imagination and reproduced there; the pictures are present on the blackboard, and re-present in the imagination. Now the *intellectus agens* turns its view and its light upon the images present in imagination, and sees that the pictures, despite the differences of size, color, position and type, are all pictures of *one and the same kind of thing.* To put the point differently: the *intellectus agens* illumines the concrete and individual pictures re-present in imagination, and in its light concreteness and individuality fall away, and the *essence* which each picture represents lies revealed as this one kind of thing. The essence *triangle* (that which *triangle itself* means, regardless of size, type, color, position) is now an abstracted essence, an understandable essence, *an intelligible species.* This species is called an *abstracted* essence because the *intellectus agens,* in its operation of illumining or contemplating the images

in imagination, neglects to consider the non-essential points in which each image differs from the others and focusses upon the essential point in which all the images are the same: and this operation is called *abstracting* (or *abstraction*). The term *abstraction* is from the Latin *ab* "away; from" and *traho* "I draw," and means that the intellect *draws away* the essence from the individual marks and material conditions in which that essence is, in nature, clothed and expressed. The intellect (i. e., the *intellectus agens*) draws away or draws out the essence and renders it capable of being grasped *by itself,* or *as such,* or *formally.* In a word, the *intellectus agens,* by abstracting an essence from non-essentials, renders that essence understandable or intelligible,—turns it into *an intelligible species.*

The intellect, therefore, by its *power of abstraction,* renders sense-objects intelligible. This done, the same *intellectus agens* which exercised the operation of abstracting, takes up, so to speak, the intelligible species or abstracted essence and *impresses* this upon the intellect as understanding (i. e., the *intellectus possibilis*). The abstracted essence or intelligible species is now the *impressed species.* The *intellectus possibilis* reacts to the impression, laying hold of the impressed species *understandingly, possessively, knowingly.* This reactive, possessive grasp of the *intellectus possibilis* is said *to express* the understood essence, and the intelligible species is now *the expressed*

species. The expressed intelligible species is an essence grasped, an essence understood, an essence intellectually known: it is called an *idea* or *concept.* Ideas are the fundamental elements of intellectual knowledge, of judging, and of reasoning.

Review the process of *intellection,*—that is, of intellectual understanding,—and notice how *sensation,* —or sentient knowing,—contrasts with it. (*a*) The exterior senses know their respective objects by taking in a sentient image or *sensible impressed species* of these objects. This species is an intra-organic image, and by its wholly objective mediation, the sense reacts to know the actual sensible object there trans-subjectively present. Stirred, so to speak, into action by the impressed species, the exterior sense reacts to perceive the concrete, individual object which is there present in nature to be perceived. Thus the exterior senses do not *express* a species, but round out their knowing-action by perceiving the actual object concretely present. (*b*) The interior senses of imagination and memory can summon up and represent (evoke) their object when it is no longer actually present exteriorly; in other words, they *express* their objects in sensile species. Hence these interior senses do *express* a species. Even when the exterior object is present to the outer senses, imagination expresses it ("re-presents" it) in an expressed species. (*c*) The intellect always *expresses* a species; it rounds out its knowing-act by laying hold of an abstracted essence, and essences do not exist in an abstracted condition in nature outside the mind. The intellect knows essences *as such,* and *expresses* them so within itself. And the mark of the intelligible expressed species is always *universality and abstractness.* When, for example, the intellect has (through the service of abstraction on the part of the *intellectus agens*) laid hold of, and expressed within itself, the essence *triangle,* it has now and henceforth forever the knowledge of *triangle as such,*—of *a* triangle, *any* triangle, *every* triangle thinkable. Thus in one single expressed species it holds the essence of innumerable possible realities (triangles) which may vary widely in non-essentials as individual things. This is saying that the single expressed species (or idea) of *triangle* is a *universal* idea, that is, an idea which represents *one* essence capable of actualization in a *plurality* of individuals,—*unum-versus-alia,* "one thing as contrasted with other things"; one mental grasp as contrasted with the many things that may have the essence grasped; *universal.* Thus we say that the mind clothes reality with *universality,* not in the sense that the mind "makes up" a fictitious mask for reality, but in the sense that the mind can and does take in reality by laying hold of essences as abstracted from individuality and concreteness. Things in nature cannot exist except in an individual and concrete way, but the mind can and does express within itself that which exists, but in the mind's own way which dispenses with

the individuality and concreteness of the object as existible. Thus we justify our statement that the mark of understanding, of the intelligible species expressed in intellect, is always *universality and abstractness.*

The expressed intelligible species has many names that we must notice and understand. These are the following:

(*a*) The *idea.* This term is derived from the Greek *eidos,* "an image." And we have seen that the expressed species is indeed an image; not a picture, which is a concrete and individual image, but an imaged *essence* expressed within the intellect. An *idea* is the grasp of the essence of a thing; it is the essence of a thing held in expressed species in the intellect.

(*b*) The *simple apprehension.* The intellect in forming an idea or expressing a species *apprehends* an essence, knows it intellectually. And the intellect makes no affirmation or denial about the essence so apprehended; it grasps it *simply.* Hence the action of the intellect in forming the idea is called *simple apprehending,* and the idea itself, which is the fruit of this simple apprehending, is called the *simple apprehension.* A simple apprehension is merely the unqualified grasp of an essence.—To avoid confusion, the student is warned that the word in *-ion* (that is, *apprehension*) is often used loosely as synonymous with the word in *-ing* (that is, *apprehending*), and the process or operation of forming the idea is called

simple apprehension. It will be wiser, however, for the student to employ the *-ion* word as a synonym for *idea* or *expressed intelligible species,* and to keep the *-ing* word to designate the action or operation of intellect in forming the idea.

(*c*) The *concept.* The intellect is, so to speak, impregnated by the impressed intelligible species and *conceives* the essence within itself as an expressed intelligible species or idea.

(*d*) The *expressed species* or *species expressa.* The intellect is said to express within itself the essence which it understands or apprehends. We have already given a detailed explanation of this term.

(*e*) The *mental term* or the *intellectual term.* This name for the idea is justified in two ways: first, the idea is the finished product, the *terminus* or *term,* of the intellectual operation called simple apprehending; secondly, the idea is, so to speak, a mental *word* or *term* applied by the intellect to an understood essence. Sometimes the idea is called a *mental word.* It is as though the intellect, receiving the impressed species, reacts to *know* and *call an essence by a name or word* in the action of expressing the species.

2. *Judging*—The second operation of the intellect is that in which the mind, comparing two ideas, notices points of identity or difference, and *pronounces* that they agree or disagree. This act of pronouncing on the agreement or disagreement of two ideas is

called *judging,* and the pronouncement itself is *the judgment.*

Simple apprehending begets the idea; judging begets the judgment. In forming the idea, the intellect grasps an essence, grasps it *simply* as presented and expresses it simply within itself, making no pronouncement about its relation to any other idea. In judging, the intellect takes ideas already formed, compares one with another, notices agreement or disagreement, and *pronounces* its findings. Ideas are the elements of knowledge, but judgments are the fundamental processes of thought. In the *judgment,* and not, strictly speaking, in the *idea,* is discerned *truth* or *falsity.*

Suppose the mind is equipped with the ideas *circle* and *roundness.* When these ideas are brought into comparison, it is at once apparent to the intellect that they agree, for the idea of *circle* involves the idea of *roundness,* the one essence includes or presupposes the other. Therefore the intellect pronounces *judgment,* "A circle is round." This is an *immediate* judgment, a *self-evident* judgment; it is a judgment which is inevitable once the two ideas concerned in it are clearly formed and brought into comparison.

When the intellect pronounces judgment, it affirms or denies that one idea agrees with another, and its pronouncement is called *a predication.* For one of the two ideas pronounced upon is that *of* or *about* which the other is affirmed or denied; one is

the *subject*-idea of which the other is *predicated.*

Suppose that the mind possesses the ideas *man* and *animal.* Analyzing the idea *man,* the intellect sees that it is *a compound idea,* that it is made up of six component ideas, namely, being (or thing), substance, body, living, sentient, rational. Analyzing the idea *animal,* the intellect sees that this also is a compound idea made up of the same components as the idea *man* with the exception of the last; for *animal* means an essence that is a thing or being, a substance, a body, a living body, a sentient body. Inasmuch as the ideas *man* and *animal* are in agreement (for the idea *man* is seen to contain all the component ideas of the idea *animal*), the intellect renders judgment, "Man is an animal." Inasmuch, however, as the idea *animal* does not measure up to the full comprehension of the idea *man* (for *animal* lacks the sixth component idea or "note" of the idea *man,* viz., rational being), the intellect renders judgment, "Man is not a non-rational animal," and, "Man is a rational animal."

The "materials" of judgment,—to employ the term figuratively,—are *two ideas noted and compared by the intellect.* The *form* or essential constituting factor of the judgment is *the pronouncement of the intellect* upon the agreement or disagreement of the two ideas.

3. Reasoning—Often the intellect is unable to render judgment by making a simple comparison of

ideas. For the two ideas compared may not be clear and distinct; the intellect may not know them in their implications, and so there is not sufficient evidence *in the ideas as known* to warrant judgment. In this case the intellect must reach judgment by a round-about process. It calls upon *a third idea* which is known in relation to the original two, and through this as a medium it reaches the evidence required for judgment. Suppose that the intellect has the ideas "A" and "B," but is unable to pronounce judgment on their agreement or disagreement. Suppose further that the intellect has a third idea "C," and that it knows this idea in relation to the other two, and is therefore able to pronounce two judgments which express this relation, thus: "A" is "C"; and "B" is "C." From these two judgments the intellect concludes that "A" is "B." Thus through a median or *middle idea* (a "common third" idea) which it employs in two preliminary judgments or *premises,* the intellect is enabled to reach the judgment originally sought (indeed, the intellect inevitably knows this judgment from the premises), and sets this forth as a *conclusion* or consequent.

The intellect, as we have seen, reaches the conclusion "A" is "B" in this way:

"A" is "C"
"B" is "C"
Therefore "A" is "B"

But if the relation of "C" to the other ideas were known to be the following:

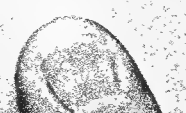
"A" is "C"
"B" is not "C"

the intellect would necessarily *draw the conclusion,* that is, would pronounce the judgment sought from the start: Therefore, "A" is not "B."

Now, this process of reaching a judgment which is not evident upon the comparison of two ideas, by employing a third or *middle* idea in two premise-judgments and so reaching a conclusion, is called *mediate inference* or simply *reasoning.*

Reasoning is called mediate inference because it uses a medium. The intellect in making self-evident judgments exercises *immediate inference* because no medium is required or used. Reasoning is always *mediate* inference.

There are two *methods* of reasoning, and the choice of method is dictated by the nature of the case investigated by the mind. Sometimes the mind or intellect reaches judgment (i. e., a conclusion, a mediate inference) by working from individual instances or singular data to a general conclusion. The intellect in this case works on the principle or guiding truth that, "What is true or false of the individual members of a class, is true or false of the class as a whole." Take an illustration:



Lead, zinc, iron, gold, etc., are heavier than water;
Now, lead, zinc, iron, gold, etc., are all the known metals;
Therefore, all the known metals are heavier than water.

Here we see that the knowledge of individual data enables the mind to reach a universal conclusion. The mind is, so to speak, *led in* from single instances to a conclusion about the whole class which is instanced in the individual data. The Latin for "led in" is *in-ductus,* and this method of reasoning is called *induc-tion.* Induction is the method of reasoning employed by all the laboratory sciences. For this reason it has been called "the scientific method." But the opinion that this method is the only method, or that it stands opposed to the alternative method of reasoning which we shall discuss in a moment, is merely silly. The two methods are complementary, and the whole effort of induction is to establish a general or universal judg-ment *from which* other judgments may safely be *deduced.*

The second method of reasoning is called *deduc-tion,* a name which comes from the Latin *de-ductus* or "led from," "drawn from." Deduction works on the principle or guiding truth that, "What is true or false of a whole class is true or false of the members of the class." An example of deduction is the follow-ing:

All the known metals are heavier than water;
Zinc is a known metal;
Therefore, zinc is heavier than water.

A useful illustration of *induction* and *deduction* may be found in the plan of a textbook, say a Latin grammar. If the grammarian proposes general rules to be applied in individual instances, his method is *deductive.* He will say: "All nouns of the second de-clension ending in *-um* are neuter." Thus he proposes a general law or truth, from which the student *deduces* conclusions about particular data, in this fashion:

All second declension nouns in *-um* are neuter;
Donum is a second declension noun in *-um;*
Therefore, *donum* is neuter.

But if the grammarian "leads on" or "leads in" the student to the formation of general rules by repeated instances, his method is *inductive.* He will not first formulate and set out a general rule, but will indicate the gender of each of a list of nouns in *-um* until the student is led to associate the ending with the gender and to reach the conclusion that *all* nouns in *-um* are neuter. The grammarian may set out some such list as this: *donum, bellum, collum, signum, vinum, ferrum, folium, oppidum, damnum, auxilium, aurum,* and indicate each as a neuter noun. The observant student cannot fail to notice the identity of endings and to associate this with the identity of

gender in each case. He is *led on* ("induced") to make the general rule for himself: Nouns of the second declension in *-um* are neuter nouns. Notice here that the whole drive of induction is to set up a universal or general truth. And for what purpose? Surely that henceforth individual instances or data may be identified by application of that general truth; in a word, that conclusions may be *deduced* from it. Thus we see that induction and deduction are not opposed methods, but complementary methods. We see also that *deduction* is the major method, for *induction* is subordinated to it, and seeks to build up means for it. Hence to scoff at *deduction* (or *the deductive method*) and to cry up *induction* (or *the inductive method*) as the only valuable method of reasoning, is to be guilty of absurdity. It is true that for the incomplete sciences which depend upon detailed investigation of individual data, *induction* is the only method available, and it is a splendid and valid method of reasoning. But the point we make here is that induction leads to the knowledge of general or universal truths which are henceforth to be applied as the source of *deduction*. The point is that the methods are not opposed, but complementary. The general or universal truths which are the starting-points or founts of deduction are learned, in human science and philosophy, partly by induction, and partly by the simple act of intelligence recognizing self-evident truths.

b) OBJECT OF THE INTELLECT

The object of a knowing-faculty is, as we have many times noticed, the reality which the faculty is fitted to recognize and know. The object of a sense is that which the sense is framed to perceive. The object of the intellect is that which the intellect is made to *understand*, or *know* in a manner consistent with its own nature as a cognitive faculty.

The object of a sense is called a sensile object; the object of the intellect is called an understandable or an intelligible object.

In its widest scope, the object of a knowing-faculty is called its *adequate* object. The adequate object of the intellect is *everything understandable*. Now, the adequate object of a faculty may be viewed in two ways: as ready to hand, and as blocked off by intervening forces or by the weakness of the faculty itself. Thus the adequate object of sight is *everything visible*. But many things are visible which sight cannot, as a fact, behold. The moons of Jupiter are visible, but one cannot see them with the naked eye. The bacteria in a glass of water are visible, but one cannot see them without a microscope. Now, that part of the adequate object which is, so to speak, ready to hand; that which the unaided faculty can, as a fact, lay hold of, is called *the proportionate object* of the faculty. The other part of the adequate object, which may, through special aid, be brought into the reach of

the faculty, is called *the extended object* of the faculty in question.

Even in dealing with its *proportionate* object, a faculty may sometimes be forced to work through something else as a medium. Thus to see the *size* of a body (and size is *per se* visible) the body must have *color*. One cannot compute the size or volume of a stream of natural gas by the sense of sight. Thus, though size is visible *per se*, it is not visible *per se primo*, "of itself and primarily." Only colored surface is visible *per se primo*. Now, the object which is achievable *per se primo* by a knowing-faculty, is *the proper object* of that faculty. This object is often spoken of by philosophers and psychologists as the primary object, the immediate object, the direct object. The object which is not *per se primo*, but *per se secundarie* ("of itself but secondarily") achievable by a faculty, is called the mediate, secondary, indirect object.

Here we ask: What is the adequate object of the intellect? What is the proper object? What is the indirect object?

1. *The adequate object of the intellect* is everything that has the character of *being*, of *entity*, of *thing-ness*. We cannot think of anything except as a *thing*. Even when we know that what we think of has no *real* entity (such as *blindness, darkness, vacuity*,—for these are not realities but the *absence* of realities) we must clothe the object with a kind of

entity or being and consider it *as though it were* a reality. Otherwise we could not think of it at all. Things that have or can have real being, independently of our knowing them, are *real entities;* things (like *darkness; square circle*) which have no entity but that which our mind confers on them by considering them *as though they were* real, are *rational entities* or *logical beings*. Now, all being, all entity, all thing-ness, rational or real, comes together to make up *the adequate object* of intellect. In a word, the adequate object of the intellect is everything understandable, everything knowable, everything intelligible, everything thinkable (and this includes, of course, everything *imaginable*).

When a being or entity is grasped by the intellect in such a way that the intellect truly knows it, the intellect possesses *truth* about it. Now, the whole purpose and effort of intellect in dealing with entity or being is to grasp *truth*. The adequate object of intellect is, therefore, accurately expressed as "the truth about everything intelligible." More simply the adequate object of the intellect is *truth* or *the true*.

2. *The proper object of the intellect* in the present human status of a substantially united soul-and-body, is *the essence of material things*. This is the object which, in this earthly life, intellect seeks *per se primo* to know; this is the object about which intellect *per se primo* seeks *truth*. Man has immediate contact with the bodily world by his senses. The senses are the *only*

immediate contacts with reality which a man possesses. The intellect cannot come at its object unless the senses function first and present their findings inwardly in the species or images of imagination. Now, the senses furnish only concrete and individual instances of knowledge about material things. The intellect, using the findings of sense re-present in imagination, arises, by its power of abstraction, to the knowledge of the *essences* of sense-objects (i. e., material things), and knows these essences, not primarily in individual, but *in universal*. This activity of intellect we have studied and amply illustrated in our discussion of the operation of the intellect, and, in special, in the discussion of *simple apprehending*. The intellect, then, has as its proper object (in the present state of man, in man's earthly existence) *the essences of material things conceived in universal*.

We see how the intellect rises from sense data to the purely intelligible. In this life, the service of the senses is naturally indispensable. Sense must function *first* or intellect remains inoperative. In all its ideas, the intellect takes some beginning from sensation, from the grasp of material things. Therefore, we repeat, the *per se primo* or *proper* object of intellect is, in this life, the essence of material things, the essential *truth* about material things.

The intellect *could* come directly at supra-sensile truth were it not limited, as it is in man's earthly state, to a beginning in sensed reality. We have seen

that the intellect is a spiritual faculty, a supra-organic faculty, and therefore *in itself* it bears no limitation which requires it to begin with material essences. Hence we are justified in concluding that the soul, separated from its body by death, can directly lay hold of supra-sensile reality. But *in this life*, the proper object of intellect is *the essences of material things grasped in universal*.

3. *The secondary or indirect object of intellect* is that which it attains through its proper object. From the understanding of the essences of material things, the intellect arises to the knowledge of supra-sensile things, such as *spirit, soul, God;* such as *unity, goodness, truth, beauty*. Further, in the intellectual grasp of individual reality, even material reality, the intellect operates indirectly. To illustrate this last point: The eye lights upon a tree. The tree is *sensed* as an individual thing. But the intellect (which heretofore has not known *tree*) arises by abstraction to the knowledge of what *a* tree is. The intellect *per se primo* grasps the essence tree *in universal*, as *tree as such*. Only by a kind of reflection, or turning back upon its first operation, is the intellect aware of *this* tree as *an individual reality of a certain essential kind*. Thus the secondary or indirect object of the intellect may be expressed as the *essence of supra-sensile realities* in universal and in individual, and also the essence of material reality *in individual*.

4. *An important item in the indirect object of the*

intellect is the soul and its faculties. The soul, by the faculty of intellect, knows itself, its faculties, its operations. By reflex advertence to its acts, the soul is made aware of the distinction between itself, its operations, and the faculties or capacities from which these operations proceed. The soul thus becomes reflexly conscious or intellectually conscious of itself, its operations, and its faculties of knowing and willing. We have seen that intellect, in this reflex service, is called intellectual *consciousness*.

SUMMARY OF THE ARTICLE

In this Article we have learned the three operations of the intellect, viz., *simple apprehending, judging, reasoning*. We have studied the processes of these operations. We have determined the adequate, the proper, and the indirect object of intellect. We may now sum up the activity called *intellection* by reviewing the following points:

1. Intellection (i. e., the operation of intellect in simple apprehending) presupposes sensation, both exterior and interior, by which sensile objects are perceived and their images or sensile species are received in imagination for keeping and reproducing.

2. The *intellectus agens* illumines the imagination-images, abstracting or drawing out the essence from the individuating marks and material conditions that

clothe it as an individual reality. This drawing out of the essence is, of course, *making understandable* what is in itself *sensile*. That which is capable of being sensed, and so taken in *in image* or *in species* by a sense, is now capable of being taken in *in species* or *in image* or *in representation* by the intellect. In a word, the *intellectus agens*, by the operation of abstraction, renders a sensile species *intelligible*.

3. The *intellectus possibilis* receives the intelligible species produced by the *intellectus agens*.

4. The *intellectus possibilis* reacts to the impressed species, possesses it, unites it to itself as a *form*, understands it and expresses it within itself as the expressed species or idea. The *idea* is the representation (species) of the essence of an object in the *intellectus possibilis*. The idea is also called *a concept*.

5. Turning upon its concepts by *reflection*, and so analyzing, comparing, uniting them, the intellect notices their constitution and their relations, and is thus enabled to form new concepts, even concepts of supra-sensile reality.

6. Intellection (the operation of intellect in simple apprehending) may be defined as a vital operation by which the intellect, impressed by an intelligible object, receives and expresses in itself the *form* or *understood essence* of the object as a thing known.

Article 3. The Origin and Expression of Ideas

a) Origin of Ideas b) Expression of Ideas

a) ORIGIN OF IDEAS

The term *idea,* comes, as we have seen, from the Greek *eidos* which means an image. The idea is the image or representation (or, more accurately, the re-presence) of the essence of a thing, expressed in the intellect. The idea is an image but it is not a picture; for a picture is ever an individual and concrete representation, while an idea is a universal and abstract representation. An idea is the simple intellectual grasp (through species or representation) of an essence *as such.*

That we possess ideas is manifest from the fact that we constantly use them. We have knowledge that is abstract and universal, and we think and speak in universal terms. Take up a textbook in geometry, and you find chapters on "Angles" and "Circles," not on *this* angle or *these* circles, but on angle and circle in universal, or *as such.* Listen to a young sportsman who tells you he likes football. He doesn't speak of this game or that as the object of his liking, but of the game as such. Now, in the world of concrete and individual things, there are no pictured angles or circles, there are no football games *in general,* or *as such,* or *in universal.* Yet we understand these things in universal. We actually have ideas. This being so, the question arises, whence come these ideas?

We have already answered the question. Ideas come from the activity of the intellect, following sensation. Ideas are due to the abstractive power of the intellect, working out understandable essences (intelligible species) from the findings of the senses and expressing these (as concepts or ideas) within itself. Here is the true origin of ideas. Why, then, raise the question of the origin of ideas, since we already know the answer and have explained that answer in full detail? We raise the question to review and criticize certain fallacious doctrines on the point which have led minds astray. We may reduce these false doctrines to three classes, namely, *innatism, traditionalism, sensism.* We notice each of these briefly:

1. *Innatism* teaches that our ideas are born in us. The term *innatism* is from the Latin *in-natus* "born in." Many varieties of this doctrine have, at various times, been put forward by philosophers to account for the *universal* character of human ideas or concepts. Plato (5 and 4 century B. C.) believed that the soul had a former existence in which it beheld essences *as such.* In that state, the intellect directly knew subsistent, real essences; it knew, not beauty as exemplified in beautiful things, but beauty itself; not triangle as abstracted from concrete representations, but triangularity as a subsistent reality; and so on. When the soul was joined with a body (and this was a penalty for some offense; the soul was put into a body-prison)

all its knowledge was forgotten. Now, through the experience of the senses, the soul takes a kind of reminder or prod to remembrance, and imperfectly recalls what it formerly knew perfectly. Thus *ideas are formed.* Thus "to know is to remember."—Descartes (1596–1650) taught that the soul (i. e., the soul-faculty of intellect) is equipped at birth with certain ideas such as those of *being, truth, thought,* and that it makes up other ideas with the coöperation of sensation.—Leibnitz (1646–1716) identifies the soul and its faculties and teaches that the intellect (and hence the soul) cannot exist without ideas, and hence has been equipped with them from the start. He holds that ideas are inborn in a sort of confused heap, and they are separated out and made clear and distinct by the activity of the intellect following sensation.—Immanuel Kant (1724–1804) makes all valuable and scientific knowledge the product of the mind's own operation working through set, inborn channels, from the basic inborn ideas of *God, self,* and *the world.*—Rosmini (1797–1855) makes the idea of *being* innate or inborn. The Ontologists,—chiefly Malebranche (1638–1715) and Gioberti (1801–1852),—declare that the idea of *God* is inborn, and serves as a mental illumination in which it becomes possible to form the ideas of other things.

Innatism is generally rejected by all schools as an inept doctrine. We reject it as plainly fallacious. It is impossible to procure any evidence for it, since no

one remembers the time of his own conception and birth, and new-born babies are unable to testify. On the other hand, the newly born give no manifestation of possessing ideas. Further, the doctrine of innatism is needless; it is not required to explain the origin of ideas. The origin of ideas is scientifically accounted for in the activity of intellect following sensation, and this explanation holds even for ideas of supra-sensile things.

Innatism is opposed to the testimony of consciousness. For we distinguish a threefold moment in human knowledge: a moment of *potentiality,* when we have not yet formed a certain idea but *can* do so; a second moment when we *actually* acquire the knowledge (i. e., form the idea); a third moment, or rather state, in which we *keep* the knowledge. In other words, we are all conscious of the fact that there was a time when we did not know certain things,—such, for example, as some data of American History. Then there was a time when we learned them. Thereafter we retained them and know them still. Now, if we admit innatism to be true, this threefold moment, or these three stages in the process of knowing, could not be distinguished.

All varieties of *innatism* either presuppose something fantastic, or they are out of gear with consciousness and experience. Further, *innatism* ever tends to lead men into skepticism, which bankrupts all certitude and science, and to *pantheism,* a debased doc-

trine which, in some manner, identifies God with the material universe. Judged thus by its logical fruit, *innatism* is to be rejected as a false and pernicious doctrine.

The intellect, to begin with, has no ideas. It is a *tabula rasa,* or clean washed slate ready to receive the writing of concepts, but having no such writing before sense-experience has been brought under the action of the *intellectus agens.* We repeat: the true origin of ideas is found in the abstractive power of the intellect working out understandable essences from the findings of sense, and expressing these essences *in intelligible species* within itself.

2. Traditionalism. De Bonald (1754–1840) says that the intellect can acquire no truth, no knowledge, no ideas, unless instructed, and instruction comes through speech. Now, speech was given to our first parents by a revelation of God, and with speech were revealed the expressible truths that were to be conveyed to the human race down through the generations. Hence all knowledge of intellect comes from a primitive revelation and is handed on *by tradition,* by speech, to mankind through the ages. The origin of ideas is *tradition.* Hence the name *traditionalism.*

Traditionalism is a fantastic doctrine manifestly out of alignment with consciousness and experience. Speech is the outer expression of knowledge. Knowledge (ideas) can be possessed without being expressed. Further, speech is an *arbitrary* sign of ideas, not a *natural* sign. There is no natural connection between a spoken term and the idea expressed by that term; if there were, there could be but one language in the world. Again: speech is meaningless unless the mind of the person addressed is already equipped with ideas. Speech does not of itself beget ideas; it presupposes ideas.

No teaching, divine or human, is needed for the first production of ideas. The Creator has equipped the soul with intellect, and this native power forms ideas after it has come into contact with reality through sensation. Hence, while God undoubtedly made a revelation to the first human beings, and while man in the perfection of innocent nature was undoubtedly able to express ideas in adequate speech, we must assert that neither revelation nor speech is necessary to account for the origin of ideas.

Traditionalism conflicts with common experience. What one of us but has often felt the inadequacy of speech to express the ideas of the mind? We have the ideas; we lack speech. Now, if speech were the origin of ideas, it would be impossible for us to have an idea without the adequate speech to express it, for our idea would be the fruit, the result, of our having its expression.

3. Sensism. The term *sensism* is taken here as a kind of blanket-expression for doctrines that are

more accurately described as *materialism, sensism, empiricism,* and *positivism.* But all these doctrines are related; all are *sensistic.* For our present purpose the term *sensism* is sufficiently exact to express them all.

Sensism teaches that sensation, without intellection, is the adequate source or origin of what we call ideas. In other words, we have no ideas, but only sensations. Ideas are elaborated sensations, or collections of sensations.

We have already seen that ideas represent essences in universal, and that sensations are perceptions of non-essentials in concrete and individual existence. It is manifestly absurd to identify things which are thus not only different but flatly opposed. Consider the idea: it represents an essence; and an essence is something changeless, necessary, independent of place and time. To know an essence is to know something changelessly the same, necessarily the same, everywhere and always the same. When, for example I know what *man* is, when I grasp the essence *man,* I know what *man* means; I know what a being *must be* if it is to have the essence *man;* I know what such a being must be necessarily, changelessly, everywhere, always. Such is essence, and the mental grasp of essence which is an idea. Contrast with this the sensile object and the sense-apprehension of such an object, which is a sensation. Sense lays hold of objects that happen to be there within range of the sense-activity;

these objects are apprehended as singular, concrete realities, at this time and in this place, realities non-essential and subject to change and contingency. Hence it is manifest that sensations and ideas are in no wise to be identified.

For the rest, we have already gone to great lengths to prove that man has a faculty which is supra-organic, and which apprehends reality that lies beyond the grasp of any sense. In other words, man has an intellect which forms ideas and knows essences. This faculty, which is, by definition, of a character different from sense, and superior to sense, is manifestly not identified with sense.

The service of sense in the forming of ideas is not to be dispensed with or minimized. The intellect forms ideas, but the intellect must work with sense-data to form its ideas. We declare that the true origin of ideas is to be found in the activity of intellect working out understandable essences *from the findings of the senses.* Thus intellectual knowledge *begins* with the senses. The fault and fallacy of *sensism* is that it makes intellectual knowledge *end* with the senses.

b) EXPRESSION OF IDEAS

We have learned that an idea is an essence *expressed* (in intelligible species) in the intellect. But it is of the *outer* expression of ideas that we now speak. The inward expression in intellect is *the form-*

ing of ideas; the outer expression which we now discuss is *the conveying of ideas* by sensible signs to other minds.

Man is a social being. He has a natural need of life with his fellows. And out of this natural need arises the further need of communicating with others. For such communication, some system of signs,—and sensible or sensile signs,—is required. Now, a system of signs for the communication of ideas is *language* or *speech.*

In a wide sense, speech is any system of sensible signs for the outward expression of *ideas,* and of the other intellectual entities which have ideas as their basic material element, viz., *judgments reasonings.* In a word, speech, in its widest scope, is any sensible system for communicating human knowledge. Speech may be a system of gestures, sounds, letters, pictures. In a stricter sense, speech is a system of spoken or written symbols or signs by which human knowledge is outwardly expressed and communicated.

The element of speech which expresses *an idea* is called *a term.* A term is a word or group of words which manifests an idea. Notice carefully that a term expresses *an idea.* There are signs which manifest feelings, emotions, or conditions of body or mind,—such as a sigh, a sob, paleness, a worried expression, —but these are not *terms.* A term is a word, or group of words, which manifests an idea. The term also manifests *the object* of the idea, the *reality* which has

the essence that the idea represents in the mind of the speaker.

Not every *word* is a term. The words, *of, by, after, happily, too, and, if,* are not terms. For a term must completely express an idea. The following words are terms: *God, man, earth, spirit, opinion.* The following groups of words are terms,—that is, each group is *a single term: the love of God; the President of these free and independent States; the great, wide, wonderful, beautiful world.* It is evident that each group-term contains words which, if taken alone, would be terms, but they would not then have the same exact implication that they have in the group. *Love* is a term; but the term *love* taken singly does not express the full idea *love of God.* The adjective-phrase *of God,* specifies *love,* limits it to a definite *kind* of love.

An idea expressed in speech is *a term,* oral or written or even gesticular. A judgment expressed in terms is *a proposition.* A piece of reasoning expressed in propositions is *argumentation,* and, when it is set forth in strict order, it is *a syllogism.*

It is interesting to speculate on the origin of speech. It is certain that man could have invented it. It is, however, likely that God gave it to our first parents, for He created them in full and mature nature, and they had need of speech from the beginning. Yet human nature in the state of innocence was equipped with such a luminous intellect that adequate speech might have been invented by our first parents with

great rapidity. At all events, the Creator has equipped man with bodily members naturally suited for the expression of articulate sounds, and man's intellect, as well as his normal sentient tendencies, prompts him to use with signification what is so readily uttered. Man has, as a fact, invented many varieties of speech, as the multiplicity of existent languages attests. Even if the first language were divinely communicated to our first parents, it has long been lost, and many languages now in use among men have little or no possible derived relationship with that primordial system of speech.

SUMMARY OF THE ARTICLE

In this Article we have studied the idea in its *origin* and in its *outward expression*. We have reviewed the truth already mastered in an earlier Article, that an idea finds its origin in the activity of the intellect working out understandable essences from sense-findings. In the present study we have considered fallacious doctrines on the origin of ideas, viz., *Innatism, Traditionalism, Sensism*. We have briefly set forth the tenets of each of these doctrines, and have shown that all three are inadmissible. In our discussion of the expression of ideas we have found that an idea is outwardly expressed by *a term*, which is an element of *speech*. We have defined *speech* and have offered some remarks about its character and its origin.

CHAPTER IV

THE WILL

This Chapter discusses the nature and existence of the rational appetency or human will, indicates the mutual influence exercised by intellect and will, and proves that the will is endowed with freedom of choice. These points are studied in the following Articles:

Article 1. The Nature and Operation of the Will
Article 2. The Interaction of Intellect and Will
Article 3. The Freedom of the Will

ARTICLE 1. THE NATURE AND OPERATION OF THE WILL

a) Meaning of *Will* b) Existence of the Will c) Acts of the Will

a) MEANING OF *WILL*

St. Thomas Aquinas calls the will a *rational appetency*. Now, an appetency or appetite is a tendency to follow and possess and enjoy what is *good*. All things have a connatural tendency towards what is good for their perfection or being, and this is *natural* appetency. Sentient beings (i. e., animal organisms) have a tendency to follow and achieve what sense-knowledge presents to them as desirable or good, and this is *sentient* appetition or sentient appetite. Hu-

man beings, who are not only sentient but rational, have, in addition to sentient appetition, a tendency to follow, love, desire, and enjoy what the intellect apprehends as good; this is the *intellectual* or *rational* appetency which we call *the will.*

The will may therefore be described as a spiritual or supra-organic faculty for tending to possess and enjoy what the intellect knows as good or desirable. As the intellect tends to possess *truth* about understandable reality, so the will tends to possess understood *good.* The intellect seeks *the true;* the will seeks *the good.* Now, the intellect is never "filled up" in this life; a man never understands so perfectly that he cannot understand further, cannot learn anything else. Nothing but infinite truth, boundless truth, will bring to the intellect its full perfection and fulfill the quest for which it was made. Nor is the will ever, in this life, in perfect, and perfectly understood, possession of good. Only infinite good can fill up the desires of will, and leave nothing further that can possibly be desired. In boundless or infinite good the will finds its perfection, the thing it was made to achieve; perfect quiescence, perfect love and enjoyment, unchanging and unending, must come to the will with the attainment of that object. Intellect is not only made for the true or *verum;* it is made for the Infinite Truth or *Summum Verum.* Will is not made for good alone, or *bonum;* it is made for Infinite Good or *Summum Bonum.* The attainment of the *Summum Verum* and

the *Summum Bonum* is what intellect and will are *for.* This is the purpose of their being. This gives them meaning. In a word, man's finest faculties, the intellect and the will, are made for the purpose of bringing man to the contemplation and enjoyment of the Infinite God. Thus do man's highest faculties indicate the meaning and purpose of human existence.

When we say that the will is an appetite for understood *good,* we do not mean that it always appetizes what really is good in itself. We know, for example, that sin can be a fact; and sin is a wilful choice of moral *evil.* We take the term *good* in its essential meaning as something desirable, something appetizable, something apprehended as good-to-have, whether this is something pleasing and excellent in itself, or something that offers itself as a means to achieving this excellence. Thus health, for example, is a good thing in itself. Now, medicine, or a painful surgical operation, may be far from desirable or pleasing on its own account; but medicine, however bitter, or an operation, however fraught with pain and danger, becomes good and desirable and appetizable in view of the fact that it may serve as the means for attaining health. In so far as it *lacks* attractiveness, bitter medicine or a painful operation is undesirable, not-good, *evil;* but it is clothed, so to speak, with goodness (it wears the *species boni* or aspect of good) inasmuch as it is a *means* to good. Evil is never chosen, never appetized, on its own account; there is no appetitive

tendency towards evil *as such;* when evil is appetized, it is appetized *sub specie boni,* under the aspect of good.

When moral evil (i. e., sin) is actually appetized, when it is chosen by the will, this evil is clothed by a perverse and blameful judgment of intellect in the garments of good; it is chosen *sub specie boni.* Notice that the wilful judgment is perverse and blameful; it is not a mere mistake. Sin is the wilful and perverse quest of good in an object in which good cannot be found. As we once said, a man seeking diamonds may perversely insist upon digging for them in a heap of filth. He will not find diamonds there. If he were not wilfully and culpably determined to dig there, he would know that no diamonds could be found in that place. Nay, in spite of his perverseness and precipitateness, he *does* know, in some measure, that no diamonds can be found there. *But it is diamonds that he is after.* So with rational appetency (will) and moral evil. It is not evil as such that the moral culprit desires or appetizes; it is *good.* But the sinner perversely and blamefully (not merely *mistakenly*) looks for good in the wrong place. *But it is good that he is after.* He seeks good, and real good, and lasting good, even though long experience has taught him that he can attain only a fleeting satisfaction, an apparent good, in the object of his evil choice, just as the digger for diamonds may turn up a bright bit of glass or a paste-jewel that has been cast into the heap of refuse.

Yet the quest of will is not for fleeting or apparent good; it is for real good, unfading good, ceaseless satisfaction. Thus we discern that evil is never chosen for its own sake, but *sub specie boni,* under the aspect of good.

Will is the supra-organic or spiritual faculty by which a man tends to lay hold of and enjoy what the understanding or intellect presents to knowledge as good. Now, the intellect has, as part of its indirect object, the essence of individual material things. Hence, such things may fall under the appetency of the will. Therefore, although the will is spiritual, it can appetize (in its own way, *rationally*) the material things which awaken sentient appetency in a man. The will can "go along" with bodily appetites, can approve them and further them, can, *through intellect,* be aroused by them to "back them up." Thus a hungry man not only experiences the sentient appetite for food, but he *wills* to eat his dinner. Yet the will is not subjected to the sway of sentient appetency. To appetize supra-sensuous good and achieve it, the will may go flatly against all bodily appetites. Thus, for example, a man may fast (for a supra-sensuous *motive,* an intellectually appetized *good*) even when he is very hungry and food is set before him.

b) EXISTENCE OF THE WILL

The existence of will is manifested to every normal person by inevitable and indubitable testimony,—the

testimony of consciousness. That we have desires, longings, appetites for things that are beyond the reach of sense, is a matter of universal human experience. That all sentient objects, taken together or singly, are inadequate to fill out the measure of human desires, ambitions, hopes, is proof positive that man has a supra-organic faculty for appetizing supra-sentient objects, that is, for tending to lay hold of and enjoy what *the intellect* knows as good.

To deny will is to deny intellect, and to reduce all human knowledge to the plane of sensation. For wherever knowledge exists, there exists a tendency to follow and act upon it. Knowledge is often, and inevitably, a knowledge of what is desirable to have or to avoid. Now, the tendency which is consequent upon knowledge *must lie in the same plane* with the knowledge. Sense-knowledge arouses sentient appetency. Intellectual knowledge arouses intellectual (or rational) appetency. It is manifest, therefore, that where there is intellectual knowledge, there will be intellectual or rational appetency, not indeed in all cases,—for intellect can know objects which stir no appetency,—but in many. In other words, where intellect exists, will must exist. But the intellect exists, as we have amply proved. Therefore, the will exists.

c) ACTS OF THE WILL

The acts of the will, following upon intellectual knowledge, may be grouped into two classes, namely,

those that the will begins and finishes, and those that the will orders done by faculties other than itself. We call the acts of the first class *elicited acts* of the will; we call those of the second class *commanded acts*, or acts *commanded by the will*.

The elicited acts of the will are six:

1. *Wish.* This is the simple fixing of the will upon an object as desired. It is the simple love of an object, the simple desire or tendency for it, whether, in fact, this tendency is objectively realizable or not. Examples of the *wish: I wish it were cooler; I wish John would come; I'd like to go with you; I wish I were more diligent.* Notice that the wish as such (not its realization) is an act that is *elicited* by the will, drawn out, so to speak, of the will as a finished thing.

2. *Intention.* This is the purposive tendency of the will towards an end to be achieved, and conceived as achievable, whether in fact that end is actually achieved or not. Examples: *I intend to vote for Roosevelt; I will not receive him if he calls; I firmly purpose to amend my life.* Notice that it is the intention as such (not its realization) that is an elicited will-act.

3. *Enjoyment* or *fruition.* This is the quiet pleasure of will in a good achieved. It is the satisfaction of will in an intention carried out. Examples of fruition may be found in the student who has just passed an examination; in a candidate who has just learned that he has been elected; in a good father or mother who,

at certain times in the course of dutiful life, realizes with the approval of will the joy of burdens nobly borne; in a decent man who tastes, as we say, the happiness of upright living. The glow, the satisfaction, that comes with achieved purpose is fruition; and fruition as such is an activity elicited by the will.

4. Consent. This is the agreement of the will to employ the means which intellect presents as requisite for realizing an intention. A man who makes a contract *intends* to achieve some end, some good, thereby, and he *consents* to the terms of the contract in order to achieve that end.

5. Election. This is the selection or choice, made by the will, of the precise actual means to be employed in carrying out an intention. If I *intend* to amend my life, I must *consent* to means of amendment, and I must *choose* (or *elect*) certain precise means. Consent may be general; election is more special and precise.

6. Use. This is the actual employment of the means consented to, and elected, for the attainment of an end or good.

It will be noticed that the *first three* of the elicited acts here listed are concerned with an end to be achieved, a good to be possessed. The *last three* are concerned with *the means* requisite for the attainment of the end or the good.

The acts which originate in the will as *commands* to be carried out by other faculties (we call them

simply *commanded acts*) are almost numberless. Yet we can classify them under three heads:

1. Internal acts. These are acts commanded by the will and executed by the intellect or the interior senses. Such acts are, for example: a deliberate effort to reason out a problem; mental prayer; a conscious effort to imagine or envision a scene; a stirring of oneself to contrition; steeling oneself to meet a disagreeable situation.

2. External acts. These are acts commanded by the will and executed by the external bodily powers. Such acts are, for example: deliberate walking; striking an enemy in the face; speaking; singing; dancing; deliberately looking at an object; listening to what is said to one.

3. Mixed acts. These are acts commanded by the will and executed by internal and external powers working concurrently. Examples of such acts are: action of eyes and mind in reading and understanding a lesson; action of hearing and comprehending an order; imagining and verbally describing a scene; thinking, imagining, remembering, as we move the hand in writing a letter to an old friend.

SUMMARY OF THE ARTICLE

In this Article we have learned that the will is *a rational appetency* which is to be defined as a supra-organic faculty for tending to possess and enjoy what the intellect apprehends as good. We have used the

term *good* in our definition as *good in general,* namely, that which is appetizable. We have learned that the object of will is *the good,* and have seen that, in last analysis, the object of will is the *Summum Bonum* or the supreme and infinite Good. We have explained how *moral evil* is chosen under the aspect of good by a perverse and blameworthy will. We have made a short proof of the existence of the will in man. Finally, we have listed the *elicited* and the *commanded* acts which proceed from the will.

Article 2. The Interaction of Intellect and Will

a) The Distinction of Intellect and Will b) Mutual influence of Intellect and Will.

a) The distinction of intellect and will

Between the intellect and the will there is a real distinction. Both are faculties of the soul, but they are faculties for essentially different services, and so are said to be *really* distinct. They are two faculties, not two phases of one.

We have seen that the faculty of intellect serves man in a variety of ways, as understanding, memory, consciousness, conscience, intelligence, reason. Yet the intellect is one faculty. For the services it renders are all in the realm of *supra-organic knowing.* There is indeed a distinction between intelligence and reason,

but it is not based on an essential divergence of these powers, and hence we do not assert that intelligence (which recognizes truth as self-evident) is a distinct faculty from reason (which recognizes truth by study or by accepting reliable authority). Intelligence and reason are but two functions of one intellect.

Between the intellect and will, however, there is an essential real distinction. For faculties are *specified,*—determined as essentially of this or that kind or character,—by their operations and by their objects. Two faculties that differ on these essential points are in no wise to be identified. Now, we have seen that the operation of intellect is a *knowing*-operation, and the operation of will is an *appetizing*-operation. On this score, intellect and will are seen to be two distinct faculties. Further, the object of the intellect is *the true,* while the object of will is *the good.* And truth and goodness are not achievable by a single creatural faculty, but by different faculties. The question has nothing to do with the metaphysical identification of *the true* and *the good,* but with the fact that, in the faculties which seek truth and goodness, the quest demands a real distinction of effort and approach. Hence we are justified in saying that the faculty which has truth for its object is a faculty really distinct from that which has goodness for its object.

The intellect and the will are two faculties, not two functions of one faculty. Yet, as we shall see in a

moment, there is a close interaction and mutual influence between the human intellect and the human will.

b) MUTUAL INFLUENCE OF INTELLECT AND WILL

The will is an appetency which is aroused by intellectual knowledge. Hence it is obvious that the operation of the will *follows upon* the operation of the intellect. The will is an appetizing-faculty, a choosing-faculty, a faculty that strives for a goal. But the will is not a *knowing*-faculty. The will cannot, of itself, know its object. The intellect must illumine the object, show it as good, present it as desirable, before the will can tend towards it. This truth is sometimes set forth in a somewhat figurative manner as follows: The will is blind, or, rather, it is in the dark. It needs light before it can act. As a man who reads, mends watches, or does any work requiring precise action, cannot work in the dark, but requires light for his work, so the will cannot choose or tend towards an object in the dark. The will requires light to show the field of choice, to indicate the object towards which it may tend. Now, in the case of the workman, the light does not perform his work for him; it is *a necessary condition* for the work. So the activity of intellect in making the object known as good is the necessary condition for will-activity. To this extent, therefore, the will *depends* on the intellect, that the intellect furnishes a necessary condition for the operation of

the will. The intellect does not perform the will-act, but it renders will-action possible, nay, it *invites* will-action.

A great deal of argument was once expended on the question of which faculty has the "last word" in a will-act, the intellect or the will. The question is an intriguing one. For the will tends to achieve what the intellect presents as good. Now, may not the intellect present a *series* of objects, each better than the preceding, so that at each instant when the will is about to exercise its appetency the intellect presents a superior good which invites the will to tend in a new direction? Or again, in a will-act, is not the will determined by what the intellect *finally* sets before it as the good to be attained? And in this do we not discern a control exercised over will by the intellect? On the other hand, however, there are arguments quite as interesting for the superior control exercised by the will. Granted that when the intellect has made its ultimate judgment about the good to be attained the will tends necessarily to that good, it is the will which allows this judgment to be ultimate. For, in many things, the judgment of intellect is the result of a period of mental attention and even of reasoning; the will could have turned the attention of the intellect to other matters, thus not permitting ultimate judgment and will-action on the precise matter in question. Similarly, I must see what I look at in daylight, but I need not look. So the intellect must see

the good and present it to the will for achieving, but the will can refuse, so to speak, to "let the intellect look." Is not the will then the master; has not the will the last word about its action? We may compare the intellect to the brilliant spot-light which shows a motorist his way; but the will is like the motorist's hand which turns the spotlight here or there. If the motorist must follow the light, he is also free to determine where the light shall fall to be followed. When he finally moves off on one road, rejecting all other paths, he follows indeed where the light shows the way; but, until he was actually "on the way," the light might have been shifted to one of the paths now rejected, and *that* would have been the chosen way.

We shall find a sufficiently definite solution for the problem just indicated in the points which now follow:

1. *The intellect moves the will* by presenting to it a good to be achieved. There is an ancient axiom, "Nothing is willed that is not first known." The intellect knows an object as good, and then this object can attract the will. Thus the intellect *moves* the will, and is a *cause* of the will-act. Since, however, the intellect is a faculty really distinct from will, it is extrinsic to will, and, as a cause of the will-act, it must be an *extrinsic* cause. Now, there are two kinds of extrinsic cause, namely, *efficient* cause and *final* cause. An *efficient* cause is that which by its own action produces the effect. Thus a sculptor

is the efficient cause of the statue which he carves; thus a runner is the efficient cause of his rapid movement. A *final* cause is an end-in-view which invites the efficient cause to go to work; it is a goal to be achieved, a good to be attained. Thus the efficient cause of a statue,—the sculptor,—is led to the work and kept at it by the force of what we call his reason, motive, or purpose, in making the statue; without some reason or purpose, he *would* not and, as a rational being, *could* not, stir hand or mallet or chisel to begin the work or carry it on. It may be that he makes the statue for his own pleasure, for his enjoyment or pastime; it is more likely that he makes it to attain fame or to sell it for a price or to honor the person whose image he carves. Whatever his reason, purpose, or motive, it is *the final cause* of his carving the statue. The runner is moved to efficient action (i. e., to the running) by some reason or purpose. He may run for exercise, or as a special act of training for a race, or to win a prize, or to find out how quickly he can "do the hundred"—some reason or other, some motive, he must have, and this is *the final cause* of the running. A final cause is always a reason for the efficient cause to act, a purpose or end for the efficient cause to achieve; in creatures, the final cause is *a motive* (that which *moves* the efficient cause to action), but for the Infinite First Efficient Cause the end or final cause is a reason or purpose *but not a motive* since the First Cause cannot

be moved to action but chooses, with perfect and absolute freedom, the end to be attained.—Now, the intellect (in man) acts upon the will after the manner of a final cause. The intellect, so to speak, proposes the end to be achieved, the good to be attained, by the will. It "sets" the goal for the will, and so shares the attractive power, the drawing power, which the goal exercises upon the will. Hence we say that the intellect moves the will *after the manner of a final cause.*

2. *The will moves the intellect* after the manner of an efficient cause. That is, the will *efficiently* moves the intellect. The will does not, and cannot, make the intellect know objects otherwise than it does know them; just as I cannot look at a rose and make myself see a violet instead. But the will can make the intellect turn its attention to this object or that, just as I can look at one thing or turn to look at another. The will is not the efficient cause of the intellect's *knowing,* but it is the efficient cause of the intellect's deliberate *attending* to this, that, or the other object. The will can apply the intellect, can withdraw it from an object that engages its attention, can fix it upon another object. Thus we are justified in saying that the will moves the intellect, and exercises over intellect the force or power of *an efficient cause.*

3. In many of its operations the intellect is not moved, nor needs to be moved, by the will, but is

determined necessarily by its object. This may be the case, for example, in an act of simple apprehending or in the pronouncement of a self-evident judgment (an immediate inference). Similarly, I see what falls under my eyes in daylight, even if I do not dwell upon or study the object seen.

It is the more common doctrine among Scholastic philosophers that the intellect, considered simply in its essence, is a faculty superior to will. For, taken simply, it is more perfect *to know* than to experience an appetitive tendency. But, in reference to some special acts, the will is superior to the intellect. The will is superior inasmuch as it can move man to noble and virtuous life, and the attainment of his last end. For it is better to please God (by will, by willed acts) than merely to know God (by act of intellect). Yet in the life to come when our intellect is elevated and fortified by the Light of Glory, we shall *see* God, that is, we shall *have intellectual Vision* of God, and in this consists the essence of eternal happiness. We say therefore: The intellect is a faculty essentially superior to will, more noble than will; but *in some of its acts in this life* the will manifests itself as superior to intellect.

SUMMARY OF THE ARTICLE

In this Article we have learned that intellect and will are two distinct faculties of the human soul, not two aspects or phases or activities of one faculty.

We have studied the mutual influence or interaction of intellect and will. We have found that, while the will always requires anterior action on the part of intellect, intellect does not always require the activity of will for its function. Further we have learned that the intellect acts as *a final cause* in moving the will, and the will acts as *an efficient cause* in moving the intellect. We have added a word about the relative perfection or nobility of intellect and will.

Article 3. The Freedom of the Will

a) Meaning of *Freedom* b) Kinds of Freedom c) Human Freedom

a) THE MEANING OF *FREEDOM*

Taken in widest meaning, *freedom* or *liberty* is a kind of undeterminedness, an immunity from necessitation or obligation. Obligation is that which determines a thing, requires it to be as it is and not otherwise. A thing so obligated or necessitated *depends* upon the obligating force. Hence the further a thing is removed from such dependency, the greater its degree of freedom. Therefore, the infinite God, who has no dependency on anything else whatever, has absolute and perfect freedom. Creatures, however, are dependent upon the causes which produce and conserve them and make and keep them what they are essentially; they depend also, in some sense,

upon the forces which affect them accidentally and determine their accidental character at any given moment. Hence creatures, from highest to lowest, are excluded from absolute and perfect and universal freedom. Some *measure* of freedom they may possess,—and *do* possess if they are sentient creatures or rational creatures,—but their finiteness is a determination and a mark of dependency which precludes the possibility of boundless and perfect freedom,

Human freedom is the liberty of the human will. It is freedom *of choice*. In many things, man is not free. He is not free to disregard the law of gravitation; he is not free to see with his ears and hear with his eyes; he is not free to change the process of natural bodily or mental activity; he is not free to be everywhere at once. Nor is he free from moral obligations. But, as we shall see, he *is* free to act or refrain from acting; he *is* free to choose this and reject that object. And this is the freedom we mean when we speak of the *freedom of the will*.

b) KINDS OF FREEDOM

1. *Freedom of independence.* This is immunity from the obligation of law which exacts obedience of subjects. Only God enjoys such liberty, for only God is subject to no regulation or law. Man is not, and cannot be, independent of law, even though he

is *physically* free to violate it. Man's obligation arising from law (divine, natural, human) is a *moral* obligation. Man is not morally independent.

2. *Freedom from force* (or freedom from *coaction*) is immunity from unwelcome bodily compulsion. A person in normal circumstances enjoys this freedom. A person who is pushed forward in a crowd, although he wishes to stand still or go the other way, suffers *coaction,* and has not, at the moment, freedom from force. So with the prisoner dragged protestingly to jail; so with the youthful culprit held captive while he is being caned. A bird in a cage or a prisoner in a cell has a limited freedom from force, for each can move about freely but within a very restricted space. A man in a straitjacket has no such freedom at all.

3. *Freedom of choice* is immunity from any interior natural compulsion to act in this way or that. It is the freedom of *a faculty* or *acting-power* which *has the control of its acts.* Of course, the faculty will be so constituted by nature that it must exercise its normal function when it operates, and in this it is not free; but it has freedom of choice when it is free to act or not to act in a given situation, and is free to fix upon this object or that when it does act. The *freedom of choice* is well described by its very name, for it is the freedom of a choosing-faculty; it is a power to *take* a course of action or *refuse* to take it; to take *this* course or *that.* This is the type of free-

dom or liberty which we ascribe to the human will. Sometimes it is called *freedom from necessitation* in acting.—Freedom of choice is manifested in three ways and psychologists have devised a special name for each mode of its exercise. Thus we have: (*a*) Freedom *of contradiction,* which is the power to choose between *contradictories.* Now, contradictories are two judgments, statements, or courses of action which perfectly exclude each other and exhaust the possibilities. Between contradictories there is no middle ground; they are always two in number, as is manifest from their definition, and, in the sphere in which they exist, one of them is necessarily verified, the other necessarily impossible. Thus "white" and "not-white" are contradictories. In the sphere of color, there is no conceivable thing which is neither the one nor the other. A thing cannot be *both,* but it must be *one* of them. Thus we rightly say that contradictories are exactly opposed and so *exclude each other* (both cannot be verified simultaneously), and they exhaust the possibilities (one or other must be verified; there is no conceivable alternative in the sphere in which they belong). Now, *freedom of contradiction* (a special variety or special manifestation of *freedom of choice*) is the power to choose between contradictories. Examples: to act or not to act; to love or not to love; to speak or not to speak. (*b*) Freedom *of contrariety* is the power to choose between *contraries.* Contraries are two judgments,

statements, or courses of action that are opposite and so *exclude each other,* but do not exhaust the possibilities. Between contraries there *is* a middle ground. Thus "white" and "black" are contraries; they cannot be simultaneously verified,—a thing cannot be at once wholly white and wholy black,—but the whole range of colors lies between them; many things may have color and be neither white nor black. *Freedom of contrariety* is, we repeat, the power to choose between contraries. Examples: to love or hate; to do good or do evil. (*c*) Freedom *of specification* is the power to choose between merely different courses of action. It is the power to *specify,* to indicate exactly, what is to be done. Examples: to read or to walk; to visit friends or to play golf. Of course, one *specifies* when one chooses between contradictories or between contraries; one "picks out" what precisely is to be done. But the freedom of specification (which thus overlaps the other varieties of freedom of choice) is technically limited to those choices which do not fall under the classification of contradictories or contraries.—The *essence of freedom of choice* lies in the freedom of *contradiction* and that of *specification.* Freedom of *contrariety,* does not belong to this essence for the ability to choose between *good* and *evil* (in the *moral* sense) is an *imperfection* of liberty, involving as it does the possibility of ultimate defeat in the quest for which the will was made. A further note: Freedom of

choice is the power to choose *means to an end,* and if an all-perfect end be achieved, so that no rational desire can longer exist,—since all desire *is perfectly satisfied* in the end achieved,—then freedom of choice necessarily ceases to have a meaning. The will has, in such a perfect object, found *fulfillment.* It is now in possession of a crowned and perfect freedom; it is not *enslaved* by good, but filled up and *perfected* by what it was made for, and further *choice* became an absurdity.

4. Freedom is further divided into a number of varieties which indicate the power *to exercise rights* in various departments of life and human action. Thus we have *civil* liberty, *religious* liberty, *personal* liberty, *domestic* liberty, *industrial* liberty, and so on.

c) HUMAN FREEDOM

By human freedom we mean the freedom of the human will. And we assert that the human will is free, by freedom of choice, to elect the means which carry it on to the achievement of good. The *good* we speak of is good *in general,* or *universal* good. Every creature, and specifically every appetite, tends to the attainment of *good,* and in this general tendency there can be no question of *choice.* Man is not free to choose to seek evil instead of good (we use the terms *good* and *evil* still in their universal meaning), for, as we have already seen, evil is not, and cannot, be chosen for its own sake, but only under

the aspect of good. But in the objects,—that is, *particular* objects, *individual* objects,—in which a man seeks good (and which are therefore appetized as *means* to that general good towards which his nature inevitably bends him) there is room for election or choice. And therefore human freedom consists in this: a man is free, by the will's freedom of choice, to choose, in individual instances, *to act* or *not to act*, to act *thus* or *otherwise*. Man has, in every act (thought, word, deed) that he deliberately exercises, the power of self-control, the power of self-determination, the power which makes him the true author of his acts,—which are therefore *imputed* to him, and for which he is therefore *responsible*. And this is what we mean by *human freedom* or *freedom of the will*.

The will is a tendency, an appetite, a striving towards an end, a goal,—towards *good*. The will is *free* in any individual situation to choose this or that object as *good*, whether, in fact, the good be real or only apparent. The character of an object as good is manifested to the will by the intellect; and the will has control of the intellect inasmuch as it can allow the intellect to focus upon an object, or can remove its attention to something else. Now, the intellect is a limited faculty; in the present life it is also hampered by its extrinsic dependence upon the senses; and its clear view and ready judgment is more or less effectively balked by impulses and precipitateness

and acquired habits. For this reason the intellect may present what is good under an aspect which makes it undesirable, and in so far evil; and, on the other hand, the intellect may present what is really undesirable under desirable aspects, and thus judge as good what is actually evil. Consider the man who sins by intemperance. He knows by sad experience that if he indulges his taste for liquor, he will go too far; and he knows that the consequences will be most unpleasant: he will suffer physical distress, perhaps for days, and he will make himself the object of anger and contempt; his conscience will afflict him with the knowledge that he has lowered himself below the status of a man and has given bad example. Despite all this, he chooses to drink liquor. Now, the free-will of a confirmed toper is not a ready will; as we have said; habit and bodily appetites influence the judgment which precedes the act of will. But so long as he is sane, the man has control of his acts; he can will and will effectively even if not easily; he remains master of his conduct, and is responsible for his deliberate acts. The point, however, that here immediately concerns us is indicated by a question: how can the man choose what is so manifestly a source of unpleasantness and distress as *good*? For this reason: the intellect can focus upon the desirable features of the object (i. e., the suggested activity or piece of conduct), leaving the undesirable features out of consideration. In another place in this Chap-

ter, we compared the intellect to a spot-light and the will to the hand that guides it and controls the direction of its beams. In the example of the intemperate man, the intellect is allowed by the guiding will to focus its light upon the *immediate* pleasure to be had in drinking; the consequences and ugly circumstances of the act are allowed to remain in darkness. Thus we see that the object, despite all evil that comes of it, is seen under the aspect of the desirable, the satisfying, the appetizable. In a word, the object is chosen as *good*.—We may profitably consider a further example. Consider the man who declares that he would like to lead a virtuous life, yet continues to lead a bad life. How is this possible? Not only is virtue good in itself, but the man *knows* it and declares that he *wishes to possess it*. The problem is not difficult of solution. The judgments of the intellect are of two kinds: *speculative* and *practical*. A *speculative* judgment pronounces on the truth or falsity of a fact or situation; it recognizes a state of affairs. A *practical* judgment is one that enunciates something to be done or avoided. Now, the will follows the *practical* judgment of the intellect, for the will is a *doing*-power, a *choosing*-power. The mere recognition of virtue as good and desirable is not yet a practical judgment; it is speculative; it is the pronouncement of intellect upon the status of a thing; it is the recognition of a state of affairs. Only when the intellect presents virtue as not only good

and desirable in a detached way, but as good and desirable here and now to go after and acquire, only then is the judgment a practical one that can win the assent of the will, causing it to elicit the activity of *intention*. But even the practical judgment is not necessarily operative in leading the will to action; only when this judgment is the *final* judgment, the last word about what is *right now* to be done, does the will necessarily follow. Nor does the will cede its freedom by reason of this necessity; remember, it is the will which allows the intellect to fix finally on the thing to be done. *The ultimate practical judgment of intellect must be followed by will-action; but the will exercises the decision which makes the judgment ultimate.* Recall our analogy of spot-light and guiding hand. The object upon which the spot-light is permitted to rest must be shown in its clear light, but the hand exercises the power which permits the light to come to rest or moves it on. Now, in the case of the man who says he wishes to be virtuous but remains vicious, we have speculative judgments of intellect which recognize virtue as fine and noble, but not the practical judgments which lead to virtuous conduct. The speculative judgment, "This is something that I should do" is not transformed into the practical judgment, "This is what I'm going to do." But, you may say, the problem remains. If the intellect actually presents virtue as desirable, it presents it as good,—at least speculatively,—and how

can the will go counter to even such a judgment in its actual choice. Because the intellect of the man in question presents virtue, in a practical judgment, as undesirable, in spite of what the speculative judgment reveals. In a word, the practical judgment of the man of bad habit shows virtue to be difficult of achievement, accompanied by sacrifices that discommode, not immediately attainable by simple effort, rewarded ultimately by a far-off heaven. On the other hand, the pleasures that contravene virtue are ready to hand, exact no effort, meet the tendency of acquired habits, give satisfaction,—however fleeting,—here and now and not hereafter. Focussing upon the *present,* on that which is immediately attainable as an agreeable experience, on that which meets the inordinate tendencies which have long been allowed to have their way, on that which lies in the spot-light as desirable (however many opposite features and appeals may be in the ring of darkness outside that small focus), the intellect actually judges (by ultimate practical judgment) that the present sinful pleasure is *good* and its opposite virtue is *evil.*

The intellect is said to be *capable of objectively indifferent judgments.* In other words, the intellect may fix upon an object, however good, and find it evil; it may fix upon any object, however evil, and find it good. Thus no matter how good or how evil an object of intellect may be in itself, it is "indifferent" in so far as it may be judged either good or bad by a particular

judgment of intellect. Note, however, that the intellect, which is a faculty for truth, is not merely deceived in finding evil in a good object or good in an evil object. Its judgment in these cases (apart from the relatively infrequent case of a mistaken mind which is called *an erroneous conscience*) is not mistaken, but *perverse,* and hence *blameworthy.* The intellect is *perverse* by reason of perversity in the will which controls its effort, study, attention, focussing. And perversity of the will is due to an abuse of freedom of choice, and is often induced by previously acquired habit of acting, especially such habits as inordinately strengthen the sentient appetites or passions and so make their appeal to the will almost the equivalent of an imperious command.—But to revert to the statement that the intellect is capable of objectively indifferent judgments,—a statement that needs further illustration. Honesty is desirable, is good, but it is something that requires care and effort, and its reward is not an immediate intense enjoyment. Dishonesty is evil, undesirable, but it may offer promise of independence from poverty, release from trying labor, enjoyment of comfort and ease. Hence the intellect, which is capable of viewing honesty indifferently, may focus upon the desirable and really good features of it (the will holding the light of intellect steadily upon these), and the resultant practical judgment, "I will be honest" is followed by honest conduct, or the resistance of a temptation to dishonesty. On the other hand, the intel-

lect may be focussed (under control of will) on the desirable features of dishonesty, and the practical judgment follows which declares it an object to be embraced; and there results an act of theft or a continued policy of cheating. Now, even the man who is daily defrauding his employers, is not in love with dishonesty as such; he must suffer many an hour of remorse, many a keen realization of the evil of his ways. Such the speculative judgments of his intellect. But as long as he continues his evil practice, he is judging *practically* that the way of thievery is *good*, despite its accompanying evil of remorse and conviction of an unworthy life. Even if the culprit pleads inability to extricate himself from the toils of evil; even if he says, "I'm so deep in this thing now, and am caught in so many complex compulsions that force me to continue, that I'm really unable to avoid dishonesty, however much I long to be free of it;" even then, we say, he still chooses the evil he deplores as *good*. For, despite the circumstances which make him long to be free from evil, he chooses the dishonesty as something *more easily endured* than the disgrace and discomfort that would follow its discontinuance. He chooses the dishonesty,—however much he bewails it,—as the lesser of evils, and hence, relatively, as *good*. What is said of dishonesty may be said of any evil that the will may choose: of impurity, of infidelity, of evil speech, of laxity in religious practice. In some cases the actual *effort* required to amend is regarded as too great a

burden (i. e., an evil) to be undertaken even to achieve the admittedly (by speculative judgment) good end. And so, for example, purity is judged (practically) as evil, and impurity as good; laxity in religion is judged as good, and fervor as evil. Thus, saint and sinner alike in every *human act* (that is, in every fully deliberate act), manifest the truth that the human will chooses only *good*.

Of the very important truth *that the human will is free* we have now to offer some proofs, and to show wherein the opposed doctrine is fallacious. We shall consider: *1. The Existence of Freedom of the Will*, and *2. The Error of Determinism*.

1. The Existence of Freedom of the Will—Our will has freedom of choice. The first, the direct, and the most evident proof of this fact is found in *consciousness*. Man is aware that he is not the victim of a nature that forces his actions in all things; he is aware that he is not the helpless prey of circumstances; he is aware that he is not compelled to yield to the attractions of any object, however powerful these may be. In a word, man is aware that he is master of his human conduct. Let us make no mistake; we do not assert that man has control over *every* activity, even every conscious activity, or that he exercises what control he has by continuous volitions or will-acts. What we do assert is that man is master of his *human* acts, that is, of such acts as he deliberately and advertently per-

forms, and which he knows as the fruit of his own decisions. A good deal of man's ordinary daily life runs along on the wheels of habit and takes a course determined by the man's character and the attractions of the various objects and situations that he encounters. But the even current of a man's life (colored by his *character* and by the *motives* found in the attractiveness or repulsiveness of particular objects and situations) is willed *in its cause,* for the man is its cause; and now and again, during a day or week or month, the man must advert more or less directly to the sort of life he regularly leads, and, so adverting, must give practical approval to it, must *will* it in short. Only occasionally, perhaps, in a person's ordinary day, is there demand for a special, clearly realized, and deliberate choice or volition. Such clearly realized will-acts are most evident in the judgments of conscience on the *moral* qualities of a situation to be faced and decided. It is particularly in conscience-judgments that a man is reflectively aware that his decision, his volition, his will-act, is the essential factor which makes his "doing" or "avoiding" *his own activity,* of which he is cause, author, and responsible determinant. —Man is *conscious* of the control he wields over his own acts. And he experiences this consciousness *before, during,* and *after* his deliberate volitions. Before he acts, he may, and frequently does, take counsel with himself or seek advice of others. He weighs reasons pro and con; he considers advantages or disadvantages to follow. During the action, he is aware that he is doing what he might have left undone, doing one thing while he might have chosen to omit it or to have done something else, even something opposite. After acting, man is conscious of self-approval or remorse; he is glad or sorry that he has acted as he did. Consciousness, is therefore, an evident proof of the existence of free-will. And of what value is consciousness? It is of basic value in human certitude. Simple consciousness of manifest facts is the foundation of all recognition of truth; it makes science possible. Denial of the value of consciousness is the denial of value in human knowledge; it leads directly to the darkness, silence, and self-contradiction of universal skepticism.

Everyone is conscious of self-direction and control in many acts. Nor is the experience merely an individual one. The collective activity of mankind is a further manifestation of the fact. Men gather into communities, set up governments, pass laws, take and ask advice, exhort and command, take a person's word or bond, regard their activities as worthy of praise or blame. Now, all these things manifest *the common consciousness of mankind* in the matter of human freedom. Why have laws, if men are necessitated and hence obliged to act as they do? We do not pass laws for dogs or horses, for trees or running brooks, but for *men;* and we pass laws for men because we know that men are free and may abuse freedom, and hence must be urged to live in a manner consonant with

peace and progress and civic security. The urgency of law is made manifest to men by *sanctions*, that is, by the penalties attached to its violation. Obviously, the very existence of laws is proof unquestionable that man is free, and is required, under punishment threatened, to use his freedom reasonably, and not to abuse it by disrupting the peace or safety of the community. Why should men seek advice, if they are necessitated and hence not free to follow it? Why should our very schools be equipped with "advisers" and vocational guides, and psychologists, if their suggestions and prescriptions are meaningless in the face of fatalistic necessity controlling man's every act? How is it that we take a man's promise to pay a debt, if the man be not free to pay his debts? We are forced to admit that the consciousness of individual men, and of mankind as a whole, is inevitably a declaration of the truth of human freedom, that is, of the freedom of choice which belongs to the will of a man.

A second proof of the freedom of will is found in very nature of the will itself. The will, as we have many times noticed, is an appetite, a tendency towards something. Now, a tendency is not necessitated except by that which meets its drive perfectly and at all points. It is manifest that no creatural good, no earthly "value," meets perfectly the appetite of will. The longest life will end, the keenest enjoyment must fade, the greatest riches must be left behind. Our desires reach beyond all limited goods, all particular

"values." The "longing after immortality" which the poet ascribes to man's spirit, is only one phase of man's longing after infinity, after boundless good ceaselessly to be possessed. Since there is nothing on earth that is unbounded, since death puts a termination to anything that might appear to be of limitless value, it follows that nothing on earth can fully and perfectly satisfy the appetite we call *the will*. Hence, nothing on earth can *necessitate* the will. But if the will is not necessitated, nor can be, the will is free. That is, it is free as an appetency, free to choose, free to go after and possess what is manifested to it as satisfying. In a word, it has freedom of choice.

A third proof of the freedom of the will is found in the nature of the intellect, the guiding light which the will controls and follows. The intellect apprehends what is good in general, in universal. And, in its practical judgments, it attracts the will to *particular* goods. And indeed in the different objects that fall under its light, the intellect can see good in various, and in opposite, features. Intellect is capable of objectively indifferent judgments because it can find any object good and desirable, or evil and undesirable, as it views different aspects and circumstances. But the concept of *good* is one concept. If, therefore, the one reality called *good* in general, can be presented in a plurality and a variety of particular manifestations, it follows that there is room and need for *election* or *choosing* on the part of the faculty which tends to lay hold of

good. In a word, it follows that the will is not necessitated but is called upon to choose. The will, therefore, has freedom of choice.

A fourth and final proof of the freedom of the will is found in the absurdities which follow upon its denial. "By their fruits ye shall know them," is a reliable test of doctrines. Therefore if the doctrine which denies freedom of the will is found to lead logically to impossibilities and absurdities, it is not a true doctrine; consequently, its contradictory doctrine is true, viz., that the will is free. Now, denial of free-will does, in fact, lead to impossibilities and absurdities. We have seen some of these in the discussion of our argument from consciousness, to wit, that denial of human freedom makes nonsense of human laws, educative methods, business practices, etc. Further, we must declare that this denial is entirely destructive of morality. For it takes away responsibility. And if a man have no free-will, and no choice in his conduct, no control of his acts, it follows that there is no such thing as right and wrong, no such thing as merit and demerit. Saint and sinner, the good man and the roué, the solid citizen and the gangster, are equally blameless in the face of fated necessity. Prisons then are torture chambers, but, of course, men are fated to build prisons and confine prisoners. Good conduct and evil conduct are equally valueless, but men are forced by blind necessity to praise the one and condemn the other. No sense or reason is to be found, therefore,

in the common conduct of mankind; we are all blind fools together. Morality comes to naught, and with morality all social sense and social security perish. Here is the fruit of the denial of human free-will. But we cannot, without denying all value to human knowledge, accept this fruit as the true food of minds. We find it absurd; we find it impossible to accept. Therefore, we find the denial of free-will impossible. We are driven to conclude that human free-will is a fact.

2. The Error of Determinism—Those who deny the freedom of the will are called *determinists*, and their doctrine is *determinism*. Alternative synonyms for these terms are *necessarians* and *necessarianism*. We who assert the freedom of the will are called *indeterminists* or *libertarians*. Notable names among determinists of one type or another are: Kant (1724–1804); Hume (1711–1776); Spinoza (1632–1677); Hobbes (1588–1679); Locke (1632–1704); Mill (1806–1873); Bain (1818–1903); Spencer (1820–1903); Sidgwick (1838–1900); Lewes (1817–1878).

Determinists declare that we always act of necessity in response to the strongest motive. We answer, if this means that we act in response to what the will allows the intellect to dwell upon and present as *the ultimate practical judgment*, the statement simply means, "the ultimate practical judgment is the ulti-

mate practical judgment," or, "the motive which prevails is the motive which prevails." We have no quarrel with this sort of elementary da-da-ism. But if the statement means that man is controlled by the most alluring, most pleasurable object, we answer that it is not so. Surely no adult has lived many years of life without sometimes refusing the most pleasurable and attractive offerings of sense or intellect, turning the mind by resolute will to the contemplation of other things. The familiar instance of St. Francis and the leper is a striking example of this sort of will-act. Let us quote the words of that great Christian philosopher, lately gone to his great reward, Mr. G. K. Chesterton: "Francis Bernardone saw his fear coming up the road towards him; the fear that comes from within and not without; though it stood white and horrible in the sunlight. For once in the long rush of his life his soul must have stood still. Then he sprang from his horse, knowing nothing between stillness and swiftness, and rushed on to the leper and threw his arms round him." Heroism, strong resistance to temptation, steady adherence to the day's duty and long routine,—here are examples of will-acts, —specially exercised in themselves or in cause,— which effectively give the lie to the doctrine that man always acts under the compulsion of the most pleasurable object.

Determinists declare that free-will acts would be *causeless* acts. The statement is wholly false. The will

is the cause of its acts, and the motive which invites this cause to go into action is some particular *good* grasped by the intellect and presented to the will which allows the intellect to "hold steady" on that object and judge it finally as the thing to be willed. Shakespeare put into the mouth of Julius Caesar the proper answer to the objection based on "causeless actions": "The cause is in my will; I will not come. That is enough to satisfy the Senate."

Determinists shift the argument, admit that there is a cause for will-acts, and then claim that all causation is necessitated; hence, the will, while it is the cause of its acts, is not the *free* cause. We appeal to consciousness and the common sense of mankind to refute this assertion. We are clearly aware that we are the authors and the causes of our will-acts, and that we may consider before acting what we are to do, and then follow a course that is, indeed, finally chosen, but which might have been rejected in favor of another course, even its opposite.

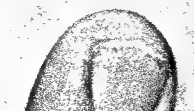
Determinists say that we judge of the activities of other men as the outcome of their character and their circumstances. While it is true that character (which is that "bundle of habits" which a man has acquired through the years) and circumstances have an influence, and even a great influence, on a person's choice, we deny that we regard this influence as a necessitating one. Knowing the character of a man, and the circumstances in which he is placed, we may judge with

a greater or lesser *probability* what he will do. But, even so, we do not think or assert that he *must* act according to our judgment. We have noticed that the will is subject to influences; our point is that it is not subject to necessitation. Astonishing conduct on the part of those we "know inside out"; unexpected nobility in one of abandoned life; surprising generosity in a miserly person,—these are experiences that most of us have encountered sometime in our lives. In actions that are not fully deliberate, a man is guided by character and the immediate circumstances; but we are not discussing indeliberate action. In many deliberate acts, man is guided by character and circumstances; that is to say, he is influenced by these forces; but we are not speaking of influences, but of necessitation. A man of virtue may be counted upon to resist evil temptations, while a man of bad life may be counted on to give in to them; but in each fully deliberate consent to, or rejection of temptation a man, no matter what his strength or weakness, *freely* makes his choice. A free-will act is not necessarily an *easy* act; and even the weakest man in the face of the strongest temptation can take his stand and offer effective resistance. (We make no account of grace here, for, while it is necessary, it is furnished always in sufficient measure.)

Determinists say that the statistics of the sociologist and criminologist prove that there is a constant ratio between social conditions and human conduct. The

answer to this assertion is that it is not so. Statistics are valuable, but their value is not so inclusive as some sociologists would like to believe. They cannot touch the inner life of the individual man; they can only generalize about men in a group. They reach conclusions about a purely mythical figure,—handy for some purposes of social science,—called "the average man." Using statistics, we can make some general conclusions about a society or group, and these may be right in the main, but they do not preclude notable and numerous exceptions. The cities of the plain had pretty generally gone bad, yet some were virtuous in the midst of almost universal defilement. Even if statistics had the value which certain determinists would like to give them, they could show no more than the existence of certain strong influences and occasions for the sort of conduct they indicate. We all admit the power of "environment"; we all acknowledge the inducements held out by a community to bring its members into comformity with its preferred type. But none of these inducements, occasions, or influences, exercises a *necessitating* force upon the free-will. Out of the vilest communities men of rare nobility have often emerged, as out of the most favorable and uplifting "environments" have sometimes come the basest of mankind.

Determinists have sometimes taken a theological turn, and have urged that a man's will cannot be free because God knows what he is going to do at every



moment of his life. The answer to this apparent difficulty lies in the fact that God's knowledge does not necessitate man. I know what I am doing at this moment, but my knowledge of my activity is not the necessitating cause of it. I am *freely* doing what I am at because I choose to do it. A somewhat lame analogy may help the puzzled person who finds God's knowledge an obstacle to free-will. Suppose I stand on a high hill looking down upon a road which swings in a mighty curve about its base. I see two motor-cars on the road, one on either side of the hill, moving towards each other. Neither motorist yet sees the other; neither knows that he is about to pass another car. From my point of eminence I can see, and can thus *know*, that the cars will pass. But my knowledge has no effect on motors or motorists; it is in no sense *the cause* of their passing. The analogy, inadequate as it is, turns the mind to the point that should be stressed in this question of divine foreknowledge and human free-will. If it be urged that God's knowledge is not the detached knowledge of a human observer; that He is the first mover without which nothing and no one moves, we answer that God moves every being in accordance with its nature, and man's nature, being intellectual, is necessarily *free* with the freedom of choice. It would be ascribing imperfection to God to assert that He could not make a creature endowed with such freedom; and, of course, He could not do so, were His perfect knowledge an obstacle to freely chosen action.

SUMMARY OF THE ARTICLE

In this Article we have learned the meaning of freedom or liberty. We have listed varieties of freedom: freedom *of independence*, freedom *from force*, freedom *of choice;* we have distinguished in freedom of choice the varieties called freedom *of contradiction*, freedom *of contrariety* (which, while found in the human will in this life, is an imperfection consequent upon human limitations), and freedom *of specification*. We have also listed the varieties called *civil, religious, personal, domestic, and industrial* liberty or freedom. We have explained at length the meaning of *human freedom* (or the *freedom of the will*) and have proved that man possesses this freedom. We have rounded out our study of the will by considering the fallacious objections brought by *determinists* against the fact of free-will in man.

APPENDIX

On Sleep and Dreams

Sleep is a more or less perfect suspension of the activities of sentient life. Aristotle called it *a binding up of the common sense* (that is, of sentient consciousness). Since, in man's earthly life, intellect is extrinsically dependent upon sentiency, the *binding up* of sentient consciousness involves the suspension of normal rational consciousness. Further: the sentient consciousness is that "awareness" which renders serviceable all activities of the interior and exterior senses, and these activities are a constant drain upon its resources. Therefore it is to be expected that a period, more or less protracted, should sometimes be allotted by nature to the restoration of force and vigor in this much-worked faculty. In addition to the fatigue which affects the central or common sense (consciousness) there is that of the sense-organs, nerves, and muscles, which is experienced in the sentient portion of the central axis. Now, the brain is the organ of the central sense and the focus, so to speak, of nervous and muscular activity. It is quite natural therefore that the brain should relax for rest and recuperation; and that this occurs in sleep is manifested by the fact that the head grows heavy and tends to fall forward when a person is sleepy.

Sometimes the senses other than sense-consciousness are active when a person sleeps, as the internal sense of imagination, and that of memory, are when we dream, and as outer senses are when we talk or walk or toss about in our sleep. Here again we have evidence that it is, first and foremost, the sense-consciousness or common sense which is affected by

sleep. Sleep may rightly be said to consist essentially in the suspension of sense-consciousness.

Sleep is *natural* when it results from the fatigue of the sentient powers, nervous and muscular. It is *artificial* when the organ of sense-consciousness (the brain) is rendered inoperative by the action of drugs (ether, chloroform, alcohol, etc.) or is dulled by uniform sense-impressions continuously repeated, or is brought under the influence of suggestion and command as in the case of hypnosis.

Dreams are representations of imagination, and even of intellect, which occur (together with the pertinent stirring of appetencies) in sleep. Imagination may be said to take over the function of the outer senses, and, sense-consciousness being almost entirely suspended, to supply to the intellect impressions which are taken for reality. As St. Thomas points out, the intellect in its present state of extrinsic dependency on the senses, takes impressions which come through the imagination as *real* unless it has the "check up" of normal operative sentiency (i. e., wakeful consciousness) to prevent error. And, in sleep, imagination may be active, as may sentient memory which regularly works with imagination, and may produce images under the purely automatic course of a haphazard line of associations. From all this we understand how dreams may appear so very real, and, even though they present absurdities and impossibilities to the mind, how these are not fully recognized until the dream is recalled (if it be recalled) during wakefulness. Outer influences doubtless stir the imagination and contribute to the "associations" which guide its automatic progress during dreams. The external senses may be unconsciously operative, at least partially; a single sense-impression which makes its way to the imagination, in the absence of the crowding complexity of normal perceptions, is likely to be received in a wholly disproportionate and exaggerated manner: thus a slight snapping sound may enter our dream-experience as a great explosion; thus the pressure of an unaccustomed amount of bed-clothing may induce the dream-

impression that one is caught under the weight of a falling building. Again, the matter of fact manner in which the dreamer accepts absurdities, such as the presence of persons long dead, or the activities of unheard of monsters, or the conducting of rational conversations with a dog or cat, are explained in the fact that the normal activity of intellect is thwarted by the absence of normality in sentient impressions; physiologically, we explain the matter, with Warren, thus: "... in sleep many of the centers are cut off from one another, and we are often unable to associate the given experience with our built-up store of memories." Dreams often proceed in a fairly logical manner, but more often they are tissues of amazingly unlike, and apparently disconnected, phantasms. I may dream that I am standing before a vast throng addressing them on some burning issue; immediately I may find myself in a small boat far at sea; then, without any recognized transition, I am impatiently wondering whether the train will be on time. I converse casually with persons never encountered, and with friends long years in their graves. I may meet with historical personages who lived centuries ago and go with them to a showing of the latest motion-picture. Wild and fanastic as these dream-experiences are, it will be interesting for most of us to compare them with the idle excursions of fancy during listless wakeful moments, or even with the astoundingly angular and disconnected course followed by the casual chat of a few talkative friends.

Dreams are singularly volatile, and unless they are remembered and attentively "gone over" soon after the dreamer wakes, they fade from his remembrance very rapidly. Some dreams, especially those of a fearsome character, may leave a lasting memory, but most do not. We are probably entirely justified in saying that everyone dreams, and the person who declares that he does not dream is merely one who does not remember his dreams. On the other hand, it seems certain that the more or less common notion that a sleeper "dreams all the time" is entirely false.

Sigmund Freud (1856–), Jewish-Austrian psychiatrist,

makes dreams a most important element in his psychology of the subconscious. He teaches that when we are awake and in our normal state, we tend to remove from our attention, and our consciousness, thoughts that would be painful or distressing. But, he maintains, these thoughts are only "shoved under the surface"; they continue to be a part of our *subconscious* life. During sleep, the subconsciousness rises to the level which consciousness holds in wakeful hours; it *asserts itself* in dreams; it releases the inhibitions which it caused and held when consciousness was in command. Thus dreams are often expressions of "repressed desires," and of the wishes or "complexes" that could not be realized in wakeful life. Freud's studies of dreams are interesting and not without value. Unfortunately, he spoils what might have been at least a quasi-scientific investigation by reducing almost all complexes to some form of instinctive sexuality. His studies are therefore morbid, and become not so much the objective investigation of the minds of men as the portrayal of an ugly prepossession in the mind of Freud. The Freudian system of "analyzing" minds,—especially through the medium of studying and interpreting their dreams and reveries,—is known as *psychoanalysis.*

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